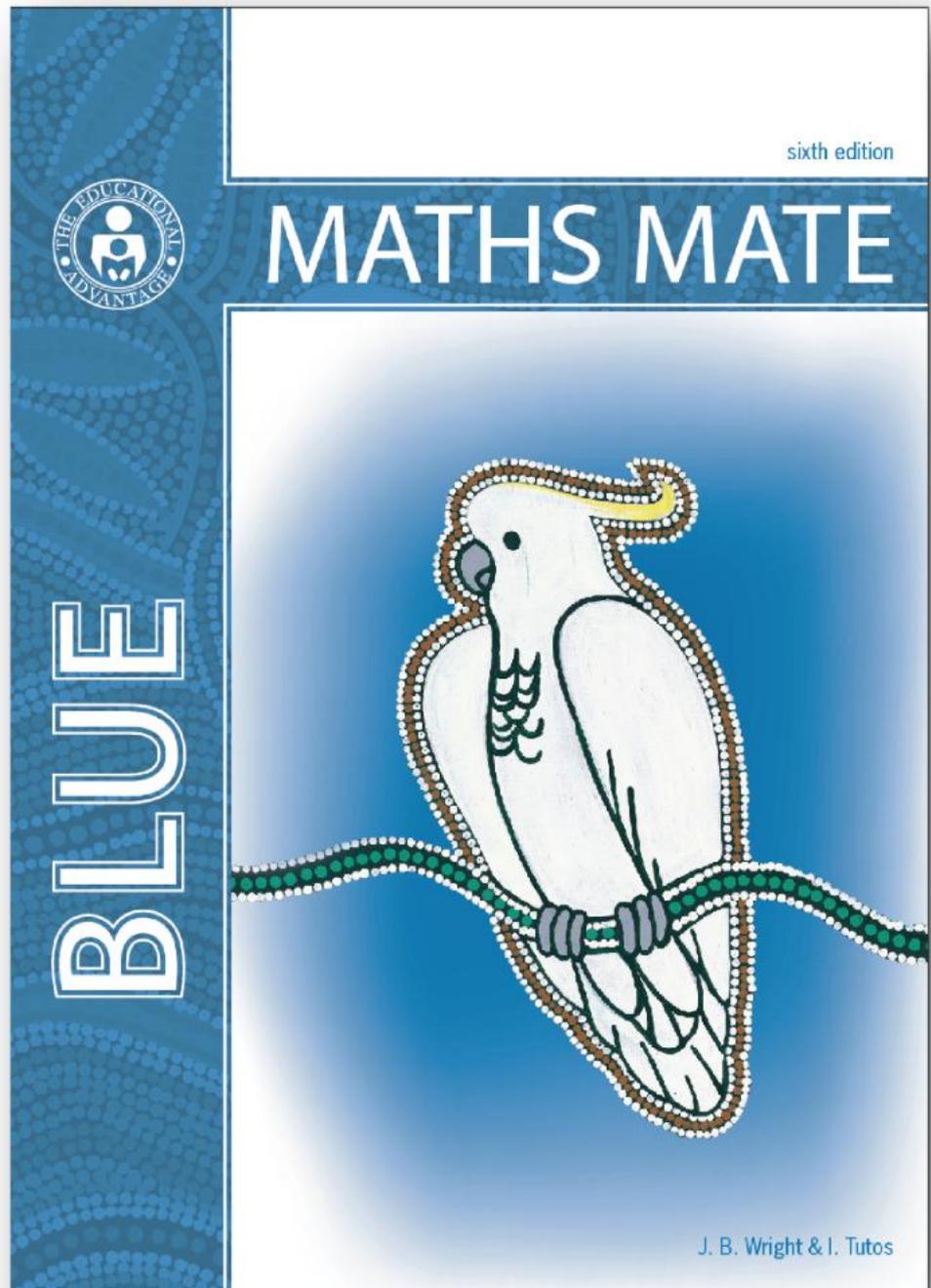


MATHS MATE

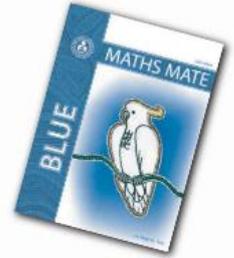


sixth edition



MATHS MATE

Teacher Resource Blue (Maths Mate year 7)



- ▶ Teacher's Guide to the Use of Maths Mate
- ▶ Student Workbook Answers
- ▶ Student Workbook Short Answers
- ▶ Problem Solving Hints & Solutions
- ▶ Test Masters
- ▶ Test Answers
- ▶ Record Keeping Sheets

For your free Skill Builder Blue/Green contact us:

- ▶ info@mathsmate.net

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MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10

This Teacher Resource PDF
comes with a limited
Lifetime Update Guarantee.

Each time a new edition of the
Maths Mate Program is released,
an **upgrade** for your
Teacher Resource PDF is available
FREE* of charge
when you contact us direct.

This ensures that each teacher can have the latest edition without your school having to incur any further costs. We have chosen to do this to demonstrate the strength of our belief that access to a Teacher Resource PDF is important in the smooth running and success of the programme.

* The free Teacher Resource PDF is limited to schools that continue to purchase at least 25 student workbooks.





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J. B. Wright & I. Tutos

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Preface

The Maths Mate Review Program is designed to be used in schools by students from years 3 to 10 (Australia) and years 4 to 11 (New Zealand). Emphasis is placed on the review and gradual development of basic skills.

It is not expected that all students will be able to complete every question from week one. Some questions have been designed to offer a real challenge. However, a major strength of the program is that students are consistently confronted with problems relating to their understanding of the same basic skill, encouraging them to see the need to master that skill in order to progress.

RECOMMENDED GRADE / YEAR LEVEL INDICATOR

	AUS 1	2	3	4	5	6	7	8	9	10	11	12
Orange Student Workbook - 2nd Ed.												
Rose Student Workbook - 2nd Ed.												
Yellow Student Workbook - 5th Ed.												
Red Student Workbook - 5th Ed.												
Blue Student Workbook - 6th Ed.												
Green Student Workbook - 6th Ed.												
Mauve Student Workbook - 6th Ed.												
Coffee Student Workbook - 3rd Ed.												
Lime Student Workbook - 6th Ed.												
Silver Student Workbook - 3rd Ed.												

NZ Y2 Y3 Y4 Y5 Y6 Y7 Y8 Y9 Y10 Y11 Y12 Y13

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Maths Mate Blue cover painting

Cockatoo - 2003
 Acrylic on canvas 60 x 50 cm
 by Australian artist Susan Betts - Kokata, Mirning and Wirangu.

'Cockatoo' was purchased by The Educational Advantage who have been kindly given permission to reproduce the painting. This contemporary Aboriginal artwork combines traditional and modern techniques. Susan's rich and vibrant art reflects the Australian landscape and wildlife, both flora and fauna.

PREFACE

The Author

Joseph Wright has taught in a number of schools throughout Australia and also in the United States of America. His experiences led him to the firm belief that there was a real need for a Mathematics program which was based on a constant review of the basic skills which students acquire. The Maths Mate Program was designed to meet that need.

Acknowledgements

“The completion of this project was made possible by the hard work and inspiration of Joanna Tutos, Lou McKenna and Julie Moyle. Thanks to John and Wilma McCormack and the many colleagues and friends who contribute to the overall program. Special thanks to my wife Trish and our children, Peter, David, Rebecca, Paul and Anthony for their investment of time, energy, encouragement and faith.”



Preface

The Maths Mate Program has been designed to be used in schools by students from Years 3 to 10 (Australia) and 4 to 11 Years (New Zealand). Emphasis is placed on the review and gradual development of basic skills so that students keep their skills up to date and teachers need to spend less class time on revision when starting new or subsequent topics.

The program is designed to have students complete eight worksheets each term. It is not expected that all students will be able to complete every question from week one. Some questions have been designed to offer a real challenge. However, a major strength of the program is that students are consistently confronted with problems dealing with their understanding of the same basic skills, encouraging them to see the need to master those skills in order to progress.

Maths Mate is a very comprehensive program which is not only structured to help students see a logical progression in their work but also to make life easier for teachers. Easy to use record keeping sheets have been provided on the Teacher Resource PDF. The tests, which are given twice a term, provide a very good indication of individual student strengths and weaknesses and this information can also be very valuable for addressing specific problems as well as assessing progress.

Aims of the Maths Mate Program

- Provide students with regular work that helps maintain and develop skills acquired throughout the year.
- Present a structured approach so that students can see their development in specific skill areas.
- Encourage students to take responsibility for their own learning.
- Provide a challenging level of work for all students.
- Encourage parental involvement in the learning process.
- Assist teachers in the diagnosis of student strengths and weaknesses.
- Provide teachers with a concrete method of assessing students' effort and progress on a regular basis.
- Provide a consistent review program which ensures students are regularly being exposed to the Mathematical skills appropriate to their ability level.

A Teacher's Guide to the successful Implementation of the
MATHS MATE PROGRAM

The Maths Mate Program offers many valuable benefits, including the aspects of parental involvement, systemised revision, individual and group diagnostics, enhanced professional standing for teachers, and most importantly, improved efficiency in student learning. However, a number of these factors may be negated or even lost if an individual teacher or school does not effectively implement the program. The Maths Mate Program was designed with an awareness of the increasing time demands placed on classroom teachers by ever-changing curriculum development and more involved assessment and reporting procedures. Maths Mate is a dynamic tool for classroom teachers designed to effectively improve student outcomes in Mathematics, to report accurately on these and to do so within a manageable time frame.

This guide was written to assist with the implementation of Maths Mate. This first page sets out the planning and preparation required by the Head of Mathematics and/or Maths Mate Coordinator, where one is appointed, before beginning the program. The following pages are a guide for classroom teachers using the program.

SUGGESTIONS FOR PREPARATION AND ORGANISATION:

Make sure parents are given advanced notice of the implementation of the Program. This might include an introduction at Parent Information meetings at the end of the year in preparation for the next.

At the start of the new school year a letter should be sent home to parents (see PDF ~ Teacher's Guide to the use of Maths Mate, or the editable word.doc, or www.mathsmate.co.nz ~ Downloads). Parental involvement should be encouraged. Their checking to see that work is completed weekly, and their signing of each sheet, should be stressed as important to the program's success. (A follow up reminder later in the year should also be considered.)

If you are fortunate enough to have audio visual screens in your classrooms, you might consider showing the answers from the Student Workbook Answers PDF files.

Thoroughly brief teachers on the use and advantages to them of the Maths Mate Program. Greater commitment will be given by all teachers if they are aware of the goals underlying the program and have a thorough understanding of the most efficient ways of implementation.

Give a demonstration of marking and recording procedures, and the potential use of Skill Builders, as an inservice exercise prior to the start of the school year. The pages that follow may be of assistance here.

Important: If the school has purchased the student workbooks for the students, you may be able to organise the separation of the workbooks (see page iv) prior to the start of the year, perhaps even at the end of the current year.

Reminder: The Teacher Resource PDF will be replaced free of charge when a class set of a revised edition is purchased.



It is often possible for The Educational Advantage to send a representative of the Maths Mate Program to visit your school. Should you consider this assistance advantageous, please contact us to arrange a visit.

Phone: 03 9899 9065 (Australia)

Email: info@mathsmate.net

Phone: 07 929 4063 (New Zealand)

Email: info@mathsmate.co.nz

A Teacher's Guide to the Use of the MATHS MATE PROGRAM

The effective use of Maths Mate requires some good house-keeping on the part of teachers involved.

STARTING THE YEAR:

Each student will receive a Maths Mate Student Workbook appropriate to his or her level. This workbook will contain 32 worksheets of increasing difficulty. (Having 8 worksheets per term allows some flexibility to schools.)

Collect the workbooks from the students on the first day of the year. Use a class list to be sure that any student who has not yet obtained a copy is identified.

Organise for the pages of the student workbooks to be separated so that class sets of each worksheet can be placed in manila folders or plastic pockets for distribution to students on a weekly basis. (The help of teacher assistants, students or a parent support group may be useful here.) This avoids problems with a student losing a workbook and having trouble completing Maths Mate work for the remainder of the year. The covers can be used as a colourful divider to mark a section for Maths Mate work should the students be using a binder.

At the start of the year, brief your class on the advantages of the program. 'Sell' them the gains they can make with its effective use. Emphasise that, because of the nature of human memory, this program with its systematic, cyclic revision allows for maximum 'absorption' of learned procedures and for the strong reinforcement of important skills. These skills are a necessary prerequisite to problem-solving. Also explain that this is one of their responsibilities in the 'Teaching-Learning Process' and that as they progress further through the educational system, they will need to accept greater personal responsibility for their own learning.

Ensure that you take the time to fully explain the use of the program, how it will be marked, the recording process of results and the diagnostic benefits of those results for identification of appropriate *Skill Builders*.

See that each child receives a letter to parents informing them of the Maths Mate Program. Stress the parental involvement and the need for signatures on each sheet and see that you collect all the return slips for your class.

When submitting work, students might be asked to attach a separate sheet showing appropriate steps in their working. If the question can be answered in a single step, there is little to be gained from asking students to copy the question. If an intermediate step is required to obtain the answer, the student should set the question out appropriately. Such questions are marked with an asterisk ' * ' to indicate to students that working is expected to be shown.

Emphasise that all problems on the worksheets and test sheets are designed to be attempted without the aid of a calculator. Students are unlikely to become confident Mathematicians if they do not have a reasonable background of basic skills.

It is important to explain your expectations to the class. Naturally these will be relative to their level of mathematical ability. Some class members may be expected to attempt all questions including the problems at the end whereas others may only be expected to complete the sheets in part (but encouraged to go further when possible).

Also explain that the material covered in each worksheet may not necessarily reflect the work being undertaken in class at the time. The work covered by the Maths Mate Program should, with minor exceptions, be revision of work introduced in previous years of study. The exceptions will depend to some degree on the background of your students.

STARTING EACH TERM:

At the start of every term give each student a new *Worksheet Results* sheet located at the beginning of each term in the Student Workbook. Explain the importance of the upkeep of this document and how it may be used to identify which skills they have acquired and which skills they still need to learn and practise. Introduce the availability of *Skill Builders*. Providing a new sheet each term gives you a chance to further encourage students to make a fresh start and to set new goals for the term.

A hard copy of this profile sheet is best kept by the class teacher and handed back to the students every week for them to update during the correction process. Extra copies can be made for those students who would like to have a copy of their own to show their parents (see PDF ~ Record Keeping Sheets, pages 1 to 4, or www.mathsmate.co.nz ~ Downloads).

WEEK - TO - WEEK:

Get the students into a routine early. Assign the Maths Mate worksheet at the same time each week and have it returned on the same day the following week.

On the date worksheets are due, the teacher and students correct answers together in class. When marking, have students correct their own work by reading the answers to them or use an overhead screen. Having students correct their own work is less about saving the teacher's time for more important work, but more about building the process of developing in students responsibility for their own learning. It also means that students end up with a much clearer idea of the areas in which they need to concentrate their efforts.

When giving the answers, avoid pausing to discuss the answers at this stage. By using the numbered squares at the base of the worksheets to record correct responses, the time taken to transfer results to the *Worksheet Results* sheet can be minimised (see Fig. 1). The squares at the base of each worksheet can be rotated and aligned with those on the *Worksheet Results* sheet to enable a quick transfer of the correct responses.

Should there be need for explanation of one or more answers or perhaps how a problem was solved, you can decide on the relative worth to the class and commit appropriate time on that basis. After the correction has been completed, it can be valuable to spend time on a problem that has clearly attracted the class's attention while they are focused on it and their interest is high. On the other hand, care needs to be taken to ensure extended periods of time are not spent catering to individual needs with the bulk of the class waiting.

Remember to check the *Problem Solving Hints & Solutions* (see PDF ~ Problem Solving Hints & Solutions, pages 1 to 16). They supply teachers with ready answers to the more challenging problem solving questions found at the end of each Maths Mate worksheet. They also contain helpful hints for developing students' problem solving skills.

Have the students fill in their *Worksheet Results* sheets and select a relevant *Skill Builder* sheet if appropriate. *Skill Builder* links are listed beside each set of four worksheets (see Fig. 1). Students should work through the *Skill Builders* in order. Where possible the skills are arranged in increasing degree of difficulty. Be aware that some skills may require the knowledge of previous skills. Generally when a student has several areas of weakness, he or she should work on the lowest numbered question first. For example, students struggling with Q5 and Q7 will need to build skills required for Q5 before they can improve Q7.

MATHS MATE		Name: Paul Wright			
		Class: 7/88			
		Teacher: Miss Bourke			
Worksheet Results		Skill Builder links			
Term 1		Sheet 1	Sheet 2	Sheet 3	Sheet 4
NUMBER & ALGEBRA	1. [+ Whole Numbers to 10]	1.1	1.1	1.1	1.1
	2. [- Whole Numbers to 10]	2.1	2.1	2.1	2.1
	3. [x Whole Numbers to 12]	3.1	3.1	3.1	3.1
	4. [+ Whole Numbers to 12]	4.1	4.1	4.1	4.1
	5. [Large Number +,-]	5.1	5.1	5.1	5.1
	6. [Large Number x,-]	6.1	6.1	6.1	6.1
	7. [Decimal +,-]	7.1	7.1	7.1	7.1
	8. [Decimal x,-]	8.1	8.1	8.1	8.1
	9. [Fraction +,-]	9.1,2	9.1	9.1	9.1,2
	10. [Fraction x,-]	10.1	10.1	10.1	10.1
	11. [Percentages]	11.1	11.1	11.1	11.1
	12. [Decimals / Fractions / Percentages]	12.1	12.1	12.1	12.1
	13. [Integers]	13.1	13.1	13.1	13.1
	14. [Rates / Ratios]	14.1	14.1	14.1	14.1
	15. [Indices / Square Roots]	15.1	15.1	15.1	15.1
	16. [Order of Operations]	16.1	16.1	16.1	16.1
	17. [Exploring Numbers]	17.1	17.1	17.1	17.1
	18. [Multiples / Factors / Primes]	18.1,2	18.1	18.1	18.1
	19. [Number Patterns]	19.1,3,4	19.1	19.1	19.1
MEASUREMENT & GEOMETRY	20. [Expressions]	20.1	20.1	20.1	20.1
	21. [Substitution]	21.1	21.1	21.1	21.1
	22. [Equations]	22.1	22.1	22.1	22.1
	23. [Coordinates]	23.1	23.1	23.1	23.1,2,3
STATISTICS & PROBABILITY	24. [Units of Measurement / Time]	24.1	24.1	24.1	24.1
	25. [Perimeter]	25.1	25.1	25.1	25.1,2
	26. [Area / Volume]	26.1	26.1	26.1	26.1
	27. [Shapes]	27.1	27.1	27.1	27.1
PROBLEM SOLVING	28. [Location / Transformation]	28.1	28.1	28.1	28.1
	29. [Statistics]	29.1	29.1	29.1	29.1
	30. [Probability]	30.1	30.1	30.1	30.1
	31. [Problem Solving 1]	Hints & Solutions	31.1	31.1	31.1
	32. [Problem Solving 2]	Hints & Solutions	32.1	32.1	32.1
	33. [Problem Solving 3]	Hints & Solutions	33.1	33.1	33.1
Total Correct		20	24	22	26

Fig. 1 - Sample *Worksheet Results* sheet

8. [Decimal \times, \div]

Skill 8.1 multiply a decimal number by a single digit number (1)

Blue 1 2 3 4 4
Green 1 1 2 3 3 4 4

- Multiply from right to left, disregarding the decimal point.
- Count the number of places to the right of the decimal point in the question.
- Position the decimal point the same number of places from the right in the answer.

Q. $0.62 \times 4 =$ A. $0.62 \times 4 = 2.48$ $4 \times 2 = 8$ write 8
 $4 \times 6 = 24$ carry 2, write 4
 $4 \times 0 + \text{carry } 2 = 2$ write 2

0.62
 $\times 4$
 2.48

2 decimal places in question so move decimal point 2 places from right in the answer

a) $0.9 \times 3 =$ b) $0.8 \times 2 =$ c) $0.7 \times 5 =$

d) $0.4 \times 6 =$ e) $0.3 \times 7 =$ f) $0.6 \times 9 =$

g) $5.1 \times 3 =$ h) $4.3 \times 6 =$ i) $2.7 \times 4 =$

j) $3.8 \times 2 =$ k) $1.9 \times 5 =$ l) $7.3 \times 8 =$

page 33 www.mathsmate.net © Maths Mate Blue/Green Skill Builder 8

Fig. 2 - Sample Skill Builder sheet

Understand that any question on the Maths Mate worksheets is part of a set of four similar questions in the term. For example, consider sheets 1, 2, 3 and 4 in MM Blue (year 7) term 1. Question 10 on each sheet is similar in design, content and degree of difficulty. This grouping of question style is also true for the next set of four worksheets and so on. Thus the Maths Mate tests (see PDF ~ Test Masters, pages 1 to 32) also reflect this grouping of question style and substance. Generally too, the Skill Builders can be linked to each set of four similar questions. These links are identified, not only on the Worksheet Results sheet but also on the grid at the title of each Skill Builder (see Fig. 2). Both references should be helpful for the allocation of Skill Builders to students.

Collect the students' Maths Mate worksheets and attached working, the Worksheet Results sheets and any completed Skill Builders.

Enter Maths Mate results onto your Worksheet Record, see Fig. 3 (see also PDF ~ Record Keeping Sheets, pages 7 to 10, or www.mathsmate.co.nz ~ Downloads). Firstly, a record of the total number of correct answers for each week can be written. The presence of a parent's signature may also be noted to monitor whether work was attempted by the student at home. Late work can also be noted. This system is explained at the base of the Worksheet Record sheet. Finally, a record of any Skill Builder completed or reward given to the student for good or improving work might be noted.

It is important that students are encouraged to complete every Maths Mate worksheet to maintain the effectiveness of the program.

Skill Builders are available to students, teachers and parents from the Maths Mate websites www.mathsmate.net and www.mathsmate.co.nz The Skill Builders extensively target through instruction and practice, all skills within the related Maths Mate Program except the problem solving questions. The Skill Builders also contain a Glossary of important facts and reference material that will provide instant help when students experience difficulties. Parents could be reminded of their access to this facility.

MATHS MATE		Worksheet Record							
		Term 1							
Class: 7/8B		Teacher: Miss Bourke							
Worksheet Number		1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
1	ASHTON Darcy	15 ✓							
2	BAKER Stobhan	28 × L 1							
3	BOURKE Louise	26 ✓ 6							
4	CROSS Chris	14 ✓ 4							
5	DWYER Jim	31 × 15							
6	FIORE Ella	22 ✓							
7	FREEMAN Warren	17 ✓ 19							
8	HAHN Kim	21 ✓							
9	HU Joanna	26 ✓							
10	JILBERT Luke	19 × L 12							
11	KEUNEMAN John	22 ✓ 11							
12	McKENNA Joseph	18 ✓ 13							
13	MOYLE Brendan	24 ✓ 13							
14	MOYLE Emily	27 ✓ 16							
15	NESBIT Peter	32 ✓ 17							
16	RYAN Jacinta	21 × L 4							
17	RYAN Madeline	19 ✓ 14							
18	SETON Elizabeth	24 ×							
19	TUTOS Alexander	22 ✓ 12							
20	WINKELS Tim	19 × 5							
21	WRIGHT Anthony	28 ✓ 9							
22	WRIGHT Paul	20 ✓ 8							
23	YEO Tania	27 ✓							
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									

✓ - Signed by parent L - Work handed in late × - Not signed by parent

page 7 © Maths Mate Blue - Record Keeping Sheets

Fig. 3 - Sample Worksheet Record sheet

AFTER EVERY FOUR WORKSHEETS:

Tests are given twice a term. These tests take the same format as the worksheets and are based on the previous four worksheets. A and B tests are provided to allow alternate students to have a different test, thereby ensuring scores accurately reflect the student's own work. (The two tests can be distinguished by their label at the base of the second page, e.g. Blue~Test 3A and Blue~Test 3B.) The tests serve a number of purposes. They give the teacher a more accurate indication of the student's abilities in conditions where the child does not have the assistance of a parent or tutor. They also help to motivate students to correct their work accurately and increase their desire to learn the required skills. Without the tests, students may become comfortable with seeking assistance to achieve high scores, unaware of the importance of fully understanding their work.

It is at this point that teachers record accurately how students are performing in each area of skill. A *Test Results* sheet is provided (see PDF ~ Record Keeping Sheets, page 5, or www.mathsmate.co.nz ~ Downloads). It is expected that one of these forms be completed for each student in the class when recording test results. Again, the numbering system at the bottom of each page helps speed up this process. When administering the tests, it is advisable to have an assignment of some form or a *Skill Builder* worksheet available for students to begin as soon as they complete the test, which may only take 30 minutes for an able student.

TOPIC - TO - TOPIC:

A periodic check of the Test Results sheets will assist you in evaluating individual or possible class areas of concern. You can then plan appropriate *Skill Builder* work or advise individual students of concerns (perhaps as a guide to tutoring). It will also give you a valuable indication of the background skills students have before beginning a new topic, allowing you to tailor your lessons appropriately. In fact you are saved from having to pre-test students before each topic. This will result in a considerable saving of class time.

END OF SEMESTER:

Combined, the Worksheet Results sheet, the Test Results sheet and the Worksheet Record sheet become invaluable for writing reports and for preparing for parent / teacher interviews. They give a good indication to parents, not only of the child's skills but also of the consistency of their effort and the degree of responsibility they have assumed for their learning. At the end of the year, particularly when moving into a level where streaming occurs or into senior Mathematics classes, these records allow clear comparisons of students to be made across class groups.

MERIT CERTIFICATES:

Merit Certificates can be used to encourage and reward selected students for consistent work, outstanding results or best of all, for significant improvement. A master Merit Certificate can be found on the Teacher Resource PDF and can be printed and presented to students at the teacher's discretion.



We are confident you will find the Maths Mate Program a valuable asset to your teaching. We thank all those teachers who have provided feedback on this program and we value further comments and suggestions. Please direct all correspondence to:

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Phone: 613 9899 9065
Email: info@mathsmate.net
Website: www.mathsmate.net

Learning Works
408 Anglesea Street
Hamilton 3240
NEW ZEALAND
Phone: 647 929 4063
Email: info@mathsmate.co.nz
Website: www.mathsmate.co.nz

Dear Parents,

This year, as part of their Mathematics program, all Year 7/8 students will be given a Maths Mate worksheet on a regular basis. There will be 8 worksheets to be completed each term, generally one per week, the exceptions being short or disrupted weeks.

The Maths Mate worksheets have been designed to allow students to attempt all questions without the aid of a calculator, and this should be encouraged at home.

Don't be too concerned if your child finds the initial worksheet difficult. It is not expected that students will be able to complete every question from week one; in fact Q33 has been included to offer a real challenge to all students. Each worksheet is built around a common framework of questions aimed at covering the current Mathematics Curriculum.

While there is room on the worksheet for the recording of answers, this is only intended as a summary of the student's work. An asterisk ' * ' has been used to indicate those questions where each student has been asked to show his or her working. In these cases the detail normally expected in Mathematics should be included, with all steps in the development of answers clearly shown. This working should be attached to the worksheet and submitted with it.

Corresponding questions on each worksheet cover the same skill area; that is, Q1 always tests adding whole numbers to 10, Q2, subtracting whole numbers to 10, and so on with the questions within each category becoming progressively more difficult from week to week.

Students will be confronted by the same type of question on a regular basis. The diagnostic nature of the worksheets will help students and teachers to identify areas of strength and weakness. This should also help to motivate students to make another attempt at mastering skills that they may have found too difficult in the past. As well, the results sheet, if completed accurately, will allow students to enjoy monitoring their own improvement.

If your child is having difficulty with a certain skill, Skill Builders are available to students, teachers and parents from the Maths Mate websites www.mathsmate.net and www.mathsmate.co.nz The Skill Builders also contain a Glossary of important facts and reference material that will provide students with instant help.

It would be appreciated if you would complete the tear off slip at the bottom of this page so that we can be sure that you are aware of our expectations. We ask also that you sign the completed worksheet each week to acknowledge that your child is working independently and regularly but with your support.

We thank you in anticipation of your involvement and remind you that you are encouraged to call and discuss your child's progress at any time.

Yours sincerely,

Class Teacher

Principal



Maths Mate Program - Return Slip

Student's Name: Class:

As a parent / guardian I have signed this form to indicate that I am aware of the Maths Mate requirements expected of my child.

Parent's Signature: Date:

Dear Parents,

This year, as part of their Mathematics program, all Year 5/6 students will be given a Maths Mate worksheet on a regular basis. There will be 8 worksheets to be completed each term, generally one per week, the exceptions being short or disrupted weeks.

The Maths Mate worksheets have been designed to allow students to attempt all questions without the aid of a calculator, and this should be encouraged at home.

Don't be too concerned if your child finds the initial worksheet difficult. It is not expected that students will be able to complete every question from week one; in fact Q24 has been included to offer a real challenge to all students. Each worksheet is built around a common framework of questions aimed at covering the current Mathematics Curriculum.

While there is room on the worksheet for the recording of answers, this is only intended as a summary of the student's work. An asterisk ' * ' has been used to indicate those questions where each student has been asked to show his or her working. In these cases the detail normally expected in Mathematics should be included, with all steps in the development of answers clearly shown. This working should be attached to the worksheet and submitted with it.

Corresponding questions on each worksheet cover the same skill area; that is, Q1 always tests adding whole numbers to 10, Q2, subtracting whole numbers to 10, and so on with the questions within each category becoming progressively more difficult from week to week.

Students will be confronted by the same type of question on a regular basis. The diagnostic nature of the worksheets will help students and teachers to identify areas of strength and weakness. This should also help to motivate students to make another attempt at mastering skills that they may have found too difficult in the past. As well, the results sheet, if completed accurately, will allow students to enjoy monitoring their own improvement.

If your child is having difficulty with a certain skill, Skill Builders are available to students, teachers and parents from the Maths Mate websites www.mathsmate.net and www.mathsmate.co.nz. The Skill Builders also contain a Glossary of important facts and reference material that will provide students with instant help.

It would be appreciated if you would complete the tear off slip at the bottom of this page so that we can be sure that you are aware of our expectations. We ask also that you sign the completed worksheet each week to acknowledge that your child is working independently and regularly but with your support.

We thank you in anticipation of your involvement and remind you that you are encouraged to call and discuss your child's progress at any time.

Yours sincerely,

Class Teacher

Principal



Maths Mate Program - Return Slip

Student's Name: Class:

As a parent / guardian I have signed this form to indicate that I am aware of the Maths Mate requirements expected of my child.

Parent's Signature: Date:

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Of all the things you wear, your expression is most important.

1. [+ Whole Numbers to 10]

	1	5	3	10	7	9	2	6	8	4
+ 2	3	7	5	12	9	11	4	8	10	6

2. [- Whole Numbers to 10]

	9	11	6	8	12	3	5	10	4	7
- 1	8	10	5	7	11	2	4	9	3	6

3. [× Whole Numbers to 12]

	8	4	2	9	11	7	3	5	6	10
× 3	24	12	6	27	33	21	9	15	18	30

4. [+ Whole Numbers to 12]

	16	4	24	32	8	20	36	12	28	40
÷ 4	4	1	6	8	2	5	9	3	7	10

5. [Large Number +,-]

$$\begin{array}{r} 1360 \\ - 230 \\ \hline \end{array}$$

1130

6. [Large Number ×,+]

$$\frac{840}{10} =$$

84

7. [Decimal +,-]

$$\begin{array}{r} 52.3 \\ + 26.3 \\ \hline \end{array}$$

78.6

8. [Decimal ×,+]

$$\begin{array}{r} 0.9 \\ \times 2 \\ \hline \end{array}$$

1.8

9. [Fraction +,-]

$$\frac{7}{9} - \frac{3}{9} =$$

$\frac{4}{9}$

10. [Fraction ×,+]

$$3 \times \frac{1}{8} =$$

$\frac{3}{8}$

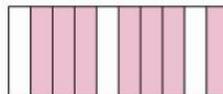
11. [Percentages]

Write as a percentage:
15 out of 100.

15%

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



70%

13. [Integers]

Which location has the lowest altitude?

- A) 1000 m above sea level
Bangalore (India)
- B) 85 m below sea level
Death Valley (USA)
- C) 24 m above sea level
London (England)

B

14. [Rates / Ratios]

Simplify the ratio 4 : 6

2 : 3

15. [Indices / Square Roots]

Write the power as a product:
 $2^2 =$

2×2

16. [Order of Operations] *

$$12 + 8 - 9 =$$

11

17. [Exploring Numbers]

Which number is the largest?

- A) 3086
- B) 3806
- C) 3068

B

18. [Multiples / Factors / Primes]

List all the multiples of 4 up to 20.

4, 8, 12, 16, 20

19. [Number Patterns]

Complete the pattern:

6, 13, 20, 27, 34, 41, 48

20. [Expressions]

Simplify
 $y + y$

2y

21. [Substitution] *

If $y = 2$, find the value of $y + 6$

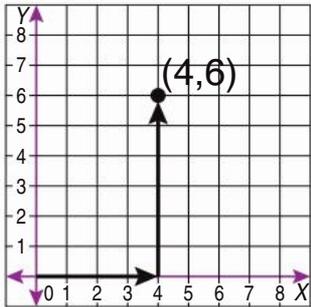
8

22. [Equations]

$$4 + 6 = 10$$

23. [Coordinates]

Start at the origin. Move 4 units to the right along the x -axis and then up 6 units. Plot a point. What are the coordinates of the point?



(4, 6)

24. [Units of Measurement / Time] *

3 days = 72 hours

25. [Perimeter] *

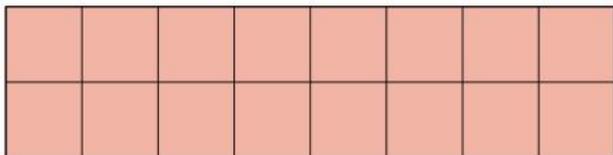
Use a ruler to find the perimeter of the square in centimetres.



4 cm

26. [Area / Volume]

Find the area of the rectangle.

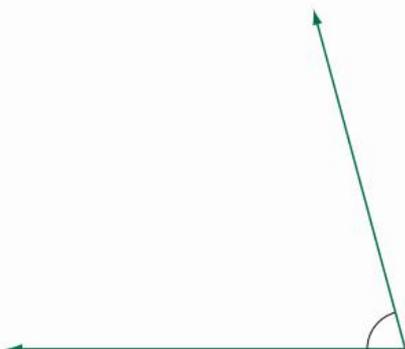


Area = 1 cm^2

16 cm^2

27. [Shapes]

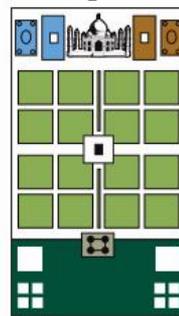
Use a protractor to measure this angle.



75°

28. [Location / Transformation]

From the main gateway of the Taj Mahal you face the tomb. Is the Mosque on your left or right?



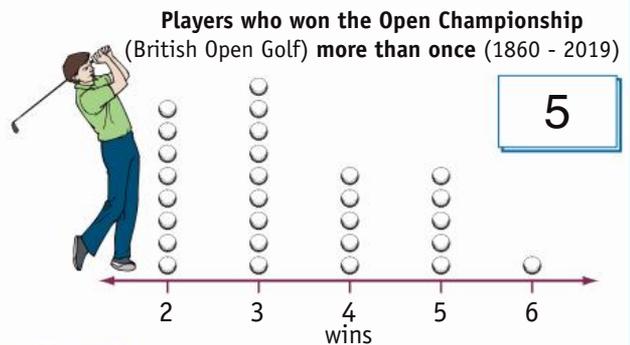
TAJ MAHAL - INDIA

- Tomb
- Main Gateway
- Garden & water displays
- Mosque
- Rest House

left

29. [Statistics]

How many players have won the golf Open Championship 5 times?



5

30. [Probability]

There are 12 white, 30 red and 18 blue Lego pieces in a box. What is the largest number of pieces you could draw from the box without taking a white piece?

48

31. [Problem Solving 1] *

If it takes June five minutes to cut a log into two pieces, how long would it take her to cut a log into six pieces? [Hint: Draw a diagram!]

25 min

32. [Problem Solving 2]

Move one match to make this equation correct. [Can you find all 3 solutions?]



111 + 11 = 122 \Rightarrow 11 + 11 = 22
 $2 + 2 = 4$ or
 $3 + 1 = 4$ or
 $3 + 2 = 5$

33. [Problem Solving 3] *

Twelve students sit for an exam which has a maximum score of 100. The average of the twelve scores achieved by the students in the exam was 95. What is the minimum mark a student could have scored?

40



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Late night TV is educational. It teaches you that you should have gone to bed earlier.

1. [+ Whole Numbers to 10]

	3	6	8	2	9	1	4	5	7	10
+ 1	4	7	9	3	10	2	5	6	8	11

2. [- Whole Numbers to 10]

	19	11	10	18	12	13	15	16	14	17
- 10	9	1	0	8	2	3	5	6	4	7

3. [× Whole Numbers to 12]

	4	9	11	5	7	12	10	6	8	3
× 5	20	45	55	25	35	60	50	30	40	15

4. [+ Whole Numbers to 12]

	6	12	2	18	14	8	20	4	10	16
÷ 2	3	6	1	9	7	4	10	2	5	8

5. [Large Number +,-]

$$\begin{array}{r} 2949 \\ - 422 \\ \hline \end{array}$$

2527

6. [Large Number ×,+]

$$\frac{1200}{100} =$$

12

7. [Decimal +,-]

$$\begin{array}{r} 5.31 \\ + 2.74 \\ \hline \end{array}$$

8.05

8. [Decimal ×,+]

$$\begin{array}{r} 0.7 \\ \times 3 \\ \hline \end{array}$$

2.1

9. [Fraction +,-]

$$\frac{4}{5} - \frac{1}{5} =$$

$\frac{3}{5}$

10. [Fraction ×,+]

$$\frac{3}{10} \times 3 =$$

$\frac{9}{10}$

11. [Percentages]

Write as a percentage:
40 out of 100.

40%

12. [Decimals / Fractions / Percentages]

What fraction of the shape is shaded?



or $\frac{2}{6}$ $\frac{1}{3}$

13. [Integers]

Who won the 2019 Masters? [Hint: In golf the lowest score wins.]

- A) -8 J. Harding
B) +2 C. Smith
C) -13 T. Woods

C

14. [Rates / Ratios]

Simplify the ratio 12 : 2

6 : 1

15. [Indices / Square Roots]

Write the product as a power:

$$4 \times 4 \times 4 \times 4 =$$

4^4

16. [Order of Operations] *

$$14 - 8 + 7 =$$

13

17. [Exploring Numbers]

Which number is the largest?

- A) 17904
B) 17490
C) 17940

C

18. [Multiples / Factors / Primes]

List all the multiples of 7 up to 35.

7, 14, 21, 28, 35

19. [Number Patterns]

Complete the pattern:

3, 12, 21, 30, 39, 48, 57

20. [Expressions]

Simplify
 $x + x + x + x$

4x

21. [Substitution] *

If $n = 5$, find the value of $n + n + n$

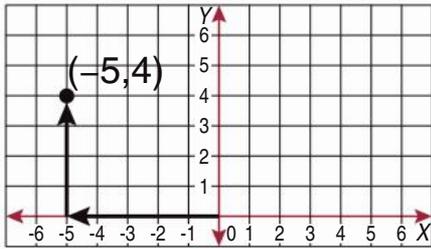
15

22. [Equations]

$$9 + 8 = 17$$

23. [Coordinates]

Start at the origin. Move 5 units to the left along the x -axis and then up 4 units. Plot a point. What are the coordinates of the point?



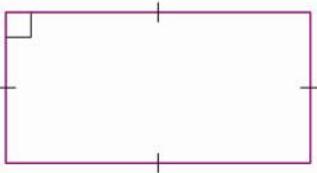
(-5, 4)

24. [Units of Measurement / Time] *

15 minutes = **900** seconds

25. [Perimeter] *

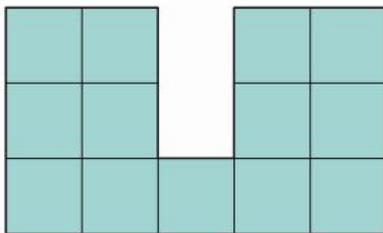
Use a ruler to find the perimeter of the rectangle in millimetres.



120 mm

26. [Area / Volume]

Find the area of the polygon.

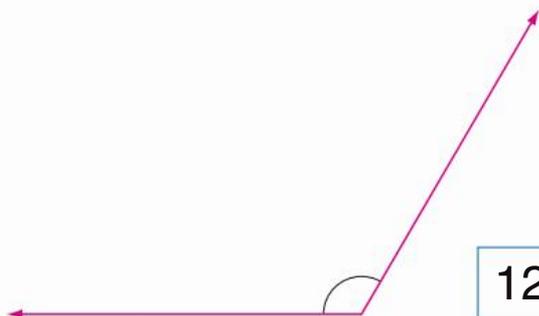


Area = 1 cm^2

13 cm^2

27. [Shapes]

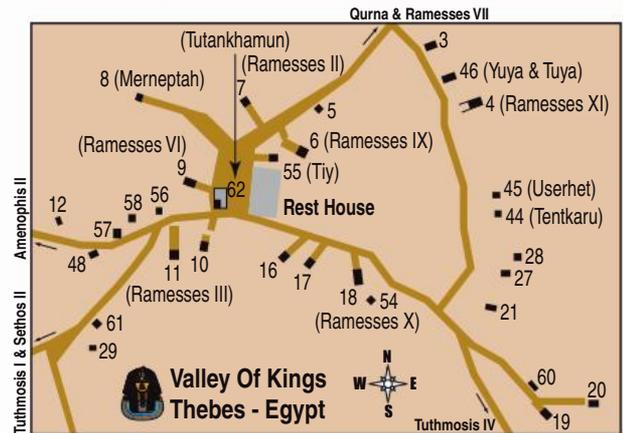
Use a protractor to measure this angle.



120°

28. [Location / Transformation]

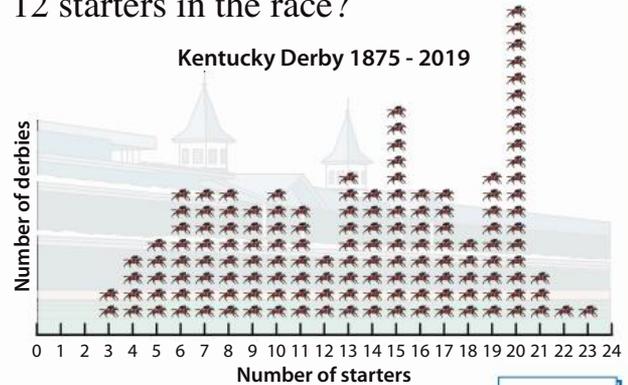
Which tomb number is west of tomb number 7, Ramesses II?



8

29. [Statistics]

How many times in the history of the Kentucky Derby has there been 12 starters in the race?



4

30. [Probability]

How many people do you need to gather to be sure that at least two of them have birthdays in the same month?

13

31. [Problem Solving 1] *

What two consecutive numbers add to 257?

128, 129

32. [Problem Solving 2] *

What is the lowest positive integer greater than 1, which when divided by 5 or 8 leaves a remainder of 1?

41

33. [Problem Solving 3] *

In a set of seven numbers, the average of the first four is 15 and the average of the last three is 8. What is the average of all seven numbers?

12



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

There are no dumb questions, only dumb answers.

1. [+ Whole Numbers to 10]

	7	2	9	4	1	10	5	6	8	3
+ 5	12	7	14	9	6	15	10	11	13	8

2. [- Whole Numbers to 10]

	10	7	6	13	5	12	14	8	9	11
- 4	6	3	2	9	1	8	10	4	5	7

3. [× Whole Numbers to 12]

	4	6	1	9	5	8	2	7	10	3
× 1	4	6	1	9	5	8	2	7	10	3

4. [+ Whole Numbers to 12]

	60	110	120	90	50	30	80	70	40	100
÷ 10	6	11	12	9	5	3	8	7	4	10

5. [Large Number +,-]

$$\begin{array}{r} 5726 \\ - 3102 \\ \hline \end{array}$$

2624

6. [Large Number ×,+]

$$\frac{310000}{1000} =$$

310

7. [Decimal +,-]

$$\begin{array}{r} 5.79 \\ + 1.40 \\ \hline \end{array}$$

7.19

8. [Decimal ×,+]

$$\begin{array}{r} 0.3 \\ 3 \overline{) 0.9} \end{array}$$

0.3

9. [Fraction +,-]

$$\frac{3}{7} + \frac{2}{7} =$$

$\frac{5}{7}$

10. [Fraction ×,+]

$$4 \times \frac{3}{7} =$$

$1\frac{5}{7}$

11. [Percentages]

Write as a percentage:
7 out of 100.

7%

12. [Decimals / Fractions / Percentages]

What fraction of the shape is shaded?



$\frac{3}{8}$

13. [Integers]

Which location has the highest temperature?

- A) -179°C Titan (moon of Saturn)
- B) -60°C Mt Everest
- C) -90°C Antarctica

B

14. [Rates / Ratios]

Simplify the ratio 10 : 25

2 : 5

15. [Indices / Square Roots]

Write the power as a product:

$$5^3 =$$

$5 \times 5 \times 5$

16. [Order of Operations]

$$48 \div 8 \div 2 =$$

3

17. [Exploring Numbers]

$36809 < 36980$
True or false?

true

18. [Multiples / Factors / Primes]

List the common multiples of 2 and 3 up to 28.

6, 12, 18, 24

19. [Number Patterns]

Complete the pattern:

0.2, 1, 1.8, 2.6, 3.4, 4.2, 5

20. [Expressions]

Simplify
 $h + h - h$

h

21. [Substitution]

If $w = 3$, find the value of $9 - w$

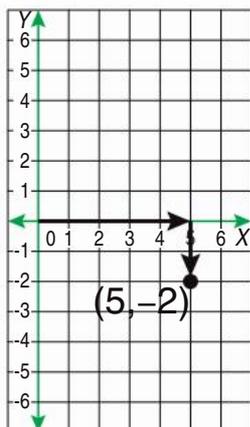
6

22. [Equations]

$$7 + 15 = 22$$

23. [Coordinates]

Start at the origin. Move 5 units to the right along the x -axis and then down 2 units. Plot a point. What are the coordinates of the point?



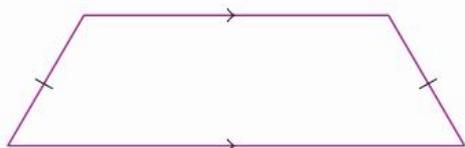
(5, -2)

24. [Units of Measurement / Time] *

180 min = h

25. [Perimeter] *

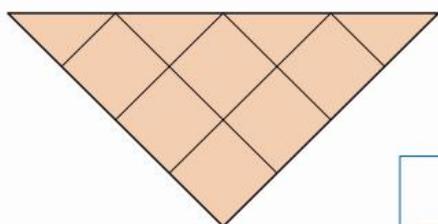
Use a ruler to find the perimeter of the trapezium in millimetres.



140 mm

26. [Area / Volume]

Find the area of the triangle.



8 cm²

27. [Shapes]

Use a protractor to measure this angle.



25°

28. [Location / Transformation]

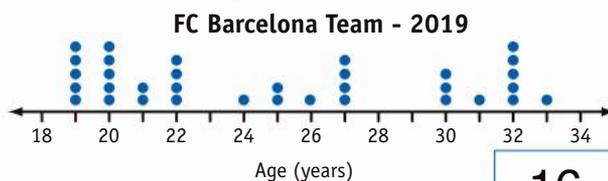
From the start, Leon walks east along Stott Tce. He takes the second street on the left and then the second street on the right. Where is Leon headed?



Todd Mall

29. [Statistics]

How many FC Barcelona players are under the age of 23?



16

30. [Probability]

Of the 400 songs in a playlist, 150 are pop songs. How many songs do you need to play on a shuffle setting to be sure you will hear a pop song?

251

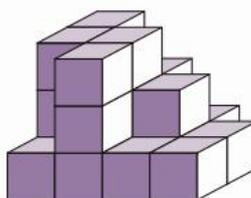
31. [Problem Solving 1] *

The digits 3, 4, 5, 6 and 7 are arranged to form even, five-digit numbers. What is the hundreds digit in the largest of these numbers?

5

32. [Problem Solving 2]

Some cubes have been removed from an array of $4 \times 3 \times 3$. How many cubes remain?



21

33. [Problem Solving 3] *

In how many ways can 24 be written as the sum of two different prime numbers? (5,19) (7,17) (11,13)

3



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Be yourself. Who else is better qualified?
Frank Giblin

1. [+ Whole Numbers to 10]

	4	2	6	9	10	3	7	1	8	5
+ 6	10	8	12	15	16	9	13	7	14	11

2. [- Whole Numbers to 10]

	13	15	6	14	7	9	11	8	10	12
- 5	8	10	1	9	2	4	6	3	5	7

3. [× Whole Numbers to 12]

	2	8	1	4	5	7	6	9	3	10
× 2	4	16	2	8	10	14	12	18	6	20

4. [+ Whole Numbers to 12]

	15	27	12	30	24	18	9	21	36	33
÷ 3	5	9	4	10	8	6	3	7	12	11

5. [Large Number +,-]

$$\begin{array}{r} 8197 \\ - 1032 \\ \hline \end{array}$$

7165

6. [Large Number ×,÷]

$$\frac{57000}{100} =$$

570

7. [Decimal +,-]

$$\begin{array}{r} 4.26 \\ + 1.38 \\ \hline \end{array}$$

5.64

8. [Decimal ×,÷]

$$\begin{array}{r} 0.6 \\ 6 \overline{) 3.6} \end{array}$$

0.6

9. [Fraction +,-]

$$\frac{3}{8} + \frac{4}{8} =$$

$\frac{7}{8}$

10. [Fraction ×,÷] *

$$7 \times \frac{2}{5} =$$

$2\frac{4}{5}$

11. [Percentages]

Write as a percentage:
23 out of 100.

23%

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



40%

13. [Integers]

Which insect can endure the lowest temperature?

- A) -24°C cucujus beetle
- B) -51°C gall wasp larvae
- C) -10°C stink bug
- D) -184°C red flat bark beetle

D

14. [Rates / Ratios]

Simplify the ratio 5 : 90

1 : 18

15. [Indices / Square Roots]

Write the product as a power:

$$3 \times 3 \times 3 \times 3 \times 3 =$$

3^5

16. [Order of Operations] *

$$24 \div 3 \times 4 =$$

32

17. [Exploring Numbers]

$4075 > 4507$
True or false?

false

18. [Multiples / Factors / Primes] *

List the common multiples of 2 and 4 up to 20.

4, 8, 12, 16, 20

19. [Number Patterns]

Complete the pattern:

$$\frac{3}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{7}{9}, \frac{8}{9}$$

20. [Expressions]

Simplify
 $t - t + t + t$

2t

21. [Substitution] *

If $p = 9$, find the value of $p + p - 5$

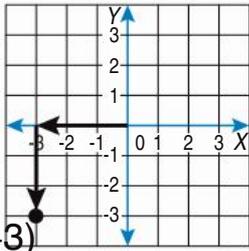
13

22. [Equations]

$$10 + 13 = 23$$

23. [Coordinates]

Start at the origin. Move 3 units to the left along the x -axis and then down 3 units. Plot a point. What are the coordinates of the point?



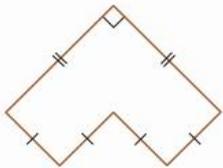
(-3, -3)

24. [Units of Measurement / Time] *

$4\frac{1}{2}$ hours = **270** minutes

25. [Perimeter] *

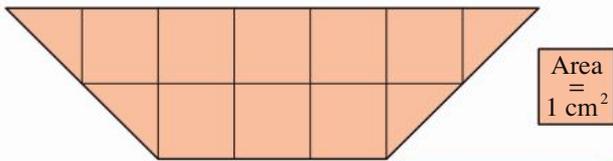
Use a ruler to find the perimeter of the polygon in centimetres.



8 cm

26. [Area / Volume]

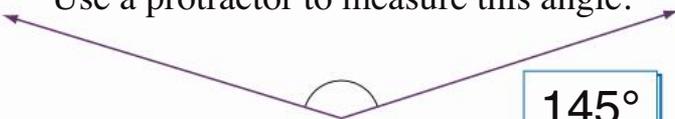
Find the area of the trapezium.



10 cm²

27. [Shapes]

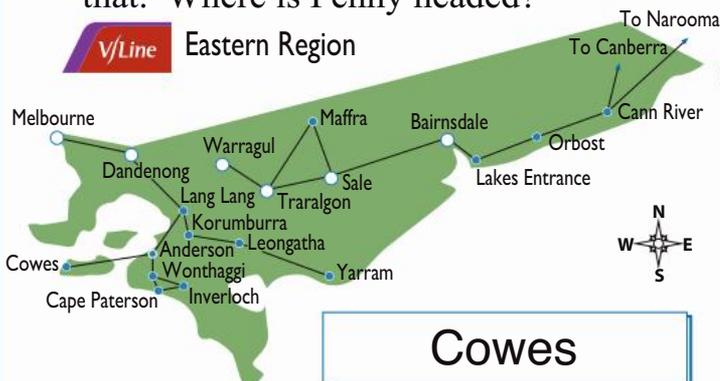
Use a protractor to measure this angle.



145°

28. [Location / Transformation]

Penny travels southeast from Dandenong. Her bus turns right at the next town and right at the town after that. Where is Penny headed?



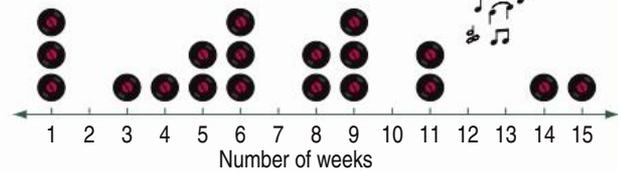
Cowes

29. [Statistics]

'Sgt. Pepper's Lonely Hearts Club Band' was The Beatles album that held the number one position on the US Billboard for the longest period of time. For how long was this album at number one?

BEATLES ALBUMS

at number 1 position on the US Billboard



15 weeks

30. [Probability]

Tom has 6 blue discs and 12 red discs in his pocket. How many discs does he need to take out of his pocket to make sure he has at least 4 blue discs?

16

31. [Problem Solving 1] *

Each shape represents a different whole number.

$$\begin{aligned} \triangle + \triangle + \square &= 23 \\ \triangle \times \square &= 60 \end{aligned}$$

What are the values of \triangle and \square ?

$\triangle = 4$ $\square = 15$

32. [Problem Solving 2] *

Four students ran in the 800 m race:

- Martina finished 2 m ahead of Ling
- Yina finished ahead of Tanya
- Tanya was 2 m ahead of Martina

Who won the race?

Yina

33. [Problem Solving 3]

Fill in the missing digits.

$$\begin{array}{r} 1 \quad 2 \quad 2 \\ 9 \quad 4 \quad 5 \\ + \quad 9 \quad 7 \quad 1 \\ \hline 2 \quad 0 \quad 3 \quad 8 \end{array}$$



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

You should never count your chickens before they're hatched - but it's a lot easier.
P.K. Shaw

1. [+ Whole Numbers to 10]

	3	10	1	7	6	8	4	5	2	9
+ 3	6	13	4	10	9	11	7	8	5	12

2. [- Whole Numbers to 10]

	5	2	9	8	3	7	11	4	10	6
- 1	4	1	8	7	2	6	10	3	9	5

3. [× Whole Numbers to 12]

	2	7	3	8	11	10	4	6	9	5
× 4	8	28	12	32	44	40	16	24	36	20

4. [+ Whole Numbers to 12]

	60	15	40	25	20	45	30	35	55	50
÷ 5	12	3	8	5	4	9	6	7	11	10

5. [Large Number +,-]

$$\begin{array}{r} 3\ 5\ 2\ 1 \\ +\ 4\ 7\ 0 \\ \hline \end{array}$$

3991

10. [Fraction ×,+] *

$$3 \times \frac{2}{3} =$$

2

16. [Order of Operations] *

$$12 - 2 \times 3 =$$

6

6. [Large Number ×,+]

$$\begin{array}{r} 5\ 6\ 1 \\ \times\ 1\ 0 \\ \hline \end{array}$$

5610

11. [Percentages]

If 88% of milk is water, what percentage do the other components equal?

12%

17. [Exploring Numbers]

In the number 2307 which digit is in the hundreds place?

3

12. [Decimals / Fractions / Percentages]

$$\text{Simplify } \frac{6}{9}$$

$\frac{2}{3}$

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 5 and 15?

15

7. [Decimal +,-]

$$\begin{array}{r} 6\ 8.7 \\ -\ 3\ 0.2 \\ \hline \end{array}$$

38.5

13. [Integers]

Arrange in ascending order:
7, -3, 0, -9, 4

-9, -3, 0, 4, 7

19. [Number Patterns]

Complete the pattern:

27, 22, 17, 12, 7, 2

8. [Decimal ×,+] *

$$2.8 \times 10 =$$

28

14. [Rates / Ratios]

Simplify the ratio
30 mL : 45 mL

2:3

20. [Expressions]

Simplify
 $ab + ab$

2ab

9. [Fraction +,-] *

$$\frac{3}{11} + \frac{10}{11} =$$

$1\frac{2}{11}$

15. [Indices / Square Roots]

$$3^2 =$$

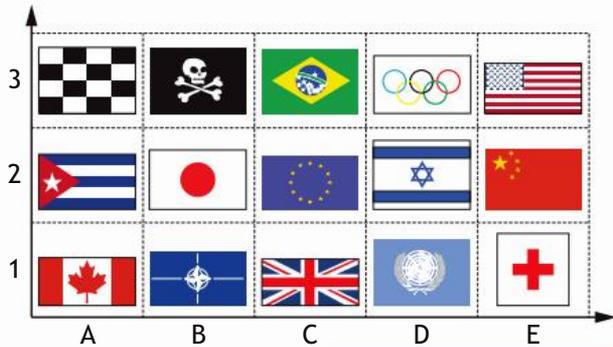
9

22. [Equations]

$$12 - \boxed{4} = 8$$

23. [Coordinates]

Which flag is located at D3?



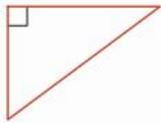
Olympic

24. [Units of Measurement / Time] *

4 km = m

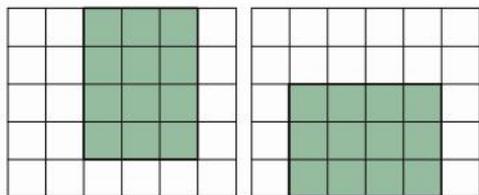
25. [Perimeter] *

Use a ruler to find the perimeter of the right-angled triangle in centimetres.



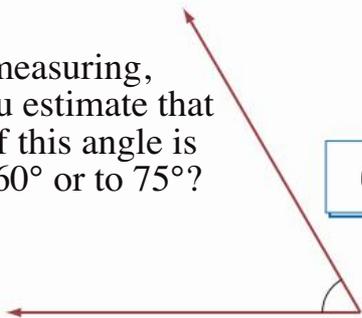
26. [Area / Volume] *

Do these rectangles have the same area?



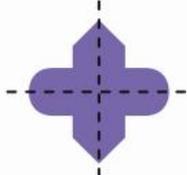
27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 60° or to 75°?



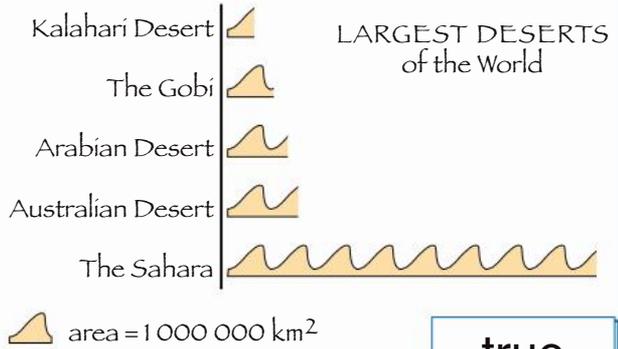
28. [Location / Transformation]

Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



29. [Statistics]

The Sahara is larger than the other four deserts put together. True or false?



30. [Probability]

'My neighbour's cat will die this century.'

Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

31. [Problem Solving 1] *

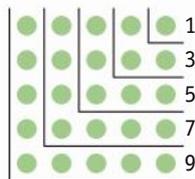
At Oxley College recess finishes at 10:50 am and is followed by two 50 minute periods before lunch. At what time does the lunch hour end?

32. [Problem Solving 2] *

Each of my children has at least two brothers and one sister. Find the least number of children I might have.

33. [Problem Solving 3] *

The numbers of dots in the five L-shapes represent the first five odd numbers. These numbers add to 25. What is the sum of the first 100 odd numbers? [Hint: These L-shapes form a square.]





Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
From small beginnings come great things.
Proverb

1. [+ Whole Numbers to 10]

	3	1	5	2	8	6	7	10	9	4
+ 4	7	5	9	6	12	10	11	14	13	8

2. [- Whole Numbers to 10]

	4	13	7	6	12	8	5	11	9	10
- 3	1	10	4	3	9	5	2	8	6	7

3. [× Whole Numbers to 12]

	3	6	9	1	10	4	2	8	7	5
× 6	18	36	54	6	60	24	12	48	42	30

4. [+ Whole Numbers to 12]

	10	8	5	9	12	4	7	3	11	6
÷ 1	10	8	5	9	12	4	7	3	11	6

5. [Large Number +,-]

$$\begin{array}{r} 8413 \\ + 383 \\ \hline \end{array}$$

8796

6. [Large Number ×,+]

$$\begin{array}{r} 423 \\ \times 100 \\ \hline \end{array}$$

42300

7. [Decimal +,-]

$$\begin{array}{r} 58.2 \\ - 14.7 \\ \hline \end{array}$$

43.5

8. [Decimal ×,+] *

$$3.5 \times 100 =$$

350

9. [Fraction +,-] *

$$\frac{4}{7} + \frac{6}{7} =$$

1 $\frac{3}{7}$

10. [Fraction ×,+] *

$$2 \times \frac{1}{4} =$$

$\frac{1}{2}$

11. [Percentages]

Helium makes up 24% of the mass of the universe. How much of the mass of the universe is made up by other elements?

76%

12. [Decimals / Fractions / Percentages]

$$\text{Simplify } \frac{4}{12}$$

$\frac{1}{3}$

13. [Integers]

Arrange in descending order:

-1, 6, 0, 2, -8

6, 2, 0, -1, -8

14. [Rates / Ratios]

Simplify the ratio
48 g : 32 g

3:2

15. [Indices / Square Roots]

$$5^2 =$$

25

16. [Order of Operations] *

$$7 \times 6 + 8 =$$

50

17. [Exploring Numbers]

In the number 27090 which digit is in the tens place?

9

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 7 and 9?

63

19. [Number Patterns]

Complete the pattern:

50, 43, 36, 29, 22, 15

20. [Expressions]

Simplify
 $xy + xy + xy$

3xy

21. [Substitution] *

If $y = 5$, find the value of $25 \div y$

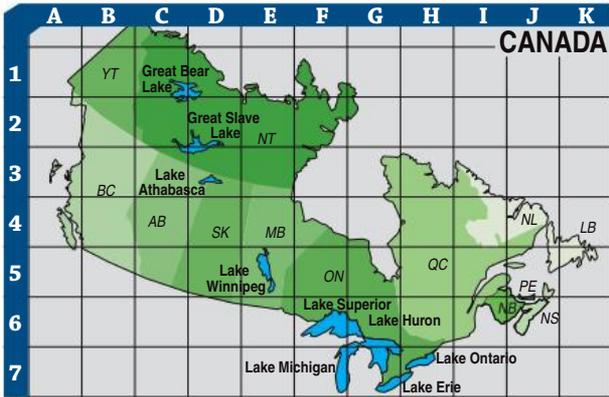
5

22. [Equations]

$$17 - \boxed{7} = 10$$

23. [Coordinates]

What is the grid reference of Lake Winnipeg?



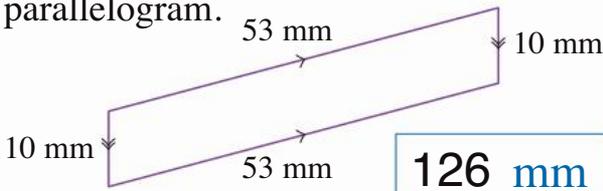
E5

24. [Units of Measurement / Time] *

3 m = **3000** mm

25. [Perimeter] *

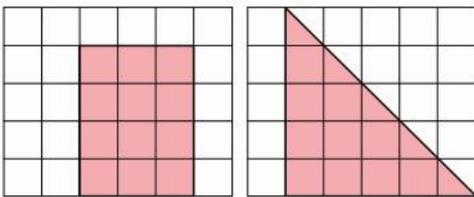
Calculate the perimeter of the parallelogram.



126 mm

26. [Area / Volume] *

Do the rectangle and the triangle have the same area?



no

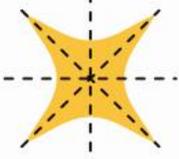
27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 110° or to 130°?

110°

28. [Location / Transformation]

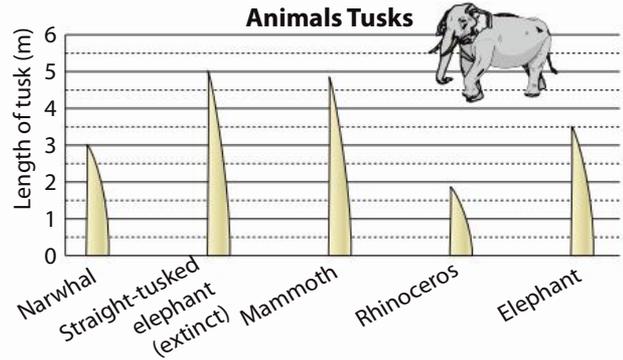
Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



4

29. [Statistics]

Which animal has a tusk closest to twice the length of a rhinoceros' tusk?



elephant

30. [Probability]

'The sun will set in the east tomorrow.' Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

A

31. [Problem Solving 1] *

Draw a straight line that splits the clock face in half so that the sum of the numbers on one side of the line equals the sum of the numbers on the other side of the line.



4 + 5 + 6 + 7 + 8 + 9 = 39
10 + 11 + 12 + 1 + 2 + 3 = 39

32. [Problem Solving 2]

Complete the addition table.

+	8	6	11	4
5	13	11	16	9
8	16	14	19	12
9	17	15	20	13
6	14	12	17	10

33. [Problem Solving 3] *

Which of the numbers 2, 3, 4, 5 or 6, when placed as a denominator in the fraction $\frac{11}{?}$ gives a result closest to $2\frac{1}{2}$?

$\frac{11}{4}$



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
The truth is always the strongest argument.
Sophocles

1. [+ Whole Numbers to 10]

	3	6	5	10	8	4	9	12	7	11
+ 2	5	8	7	12	10	6	11	14	9	13

2. [- Whole Numbers to 10]

	8	13	16	9	11	14	7	10	15	12
- 6	2	7	10	3	5	8	1	4	9	6

3. [× Whole Numbers to 12]

	8	2	7	10	3	4	6	1	9	5
× 7	56	14	49	70	21	28	42	7	63	35

4. [+ Whole Numbers to 12]

	96	24	48	64	8	80	32	72	40	56
÷ 8	12	3	6	8	1	10	4	9	5	7

5. [Large Number +,-]

$$\begin{array}{r} 5233 \\ + 2402 \\ \hline 7635 \end{array}$$

10. [Fraction ×,+] *

$$5 \times \frac{3}{10} = 1\frac{1}{2}$$

16. [Order of Operations] *

$$42 \div 6 - 5 = 2$$

6. [Large Number ×,+]

$$\begin{array}{r} 8070 \\ \times 10 \\ \hline 80700 \end{array}$$

11. [Percentages]
India has 41% of the world's poor people. What percentage of poor people live in the remainder of the world?

59%

17. [Exploring Numbers]
What is the value of the underlined digit in the number 5972?

5000

7. [Decimal +,-]

$$\begin{array}{r} 8.45 \\ - 3.09 \\ \hline 5.36 \end{array}$$

12. [Decimals / Fractions / Percentages]

Simplify $\frac{20}{50}$

$\frac{2}{5}$

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 8 and 12?

24

8. [Decimal ×,+] *

$$0.076 \times 100 = 7.6$$

13. [Integers]
Arrange in order from coldest to hottest:
6°C, -5°C, 3°C, -8°C

-8°C, -5°C, 3°C, 6°C

19. [Number Patterns]
Complete the pattern:
7.7, 7.3, 6.9, 6.5, 6.1, 5.7

9. [Fraction +,-] *

$$\frac{8}{5} - \frac{1}{5} = 1\frac{2}{5}$$

14. [Rates / Ratios]
Simplify the ratio
60¢ : 200¢

3 : 10

20. [Expressions]
Simplify
 $wx + wx - wx$

WX

15. [Indices / Square Roots]
 $4^2 = 16$

21. [Substitution] *

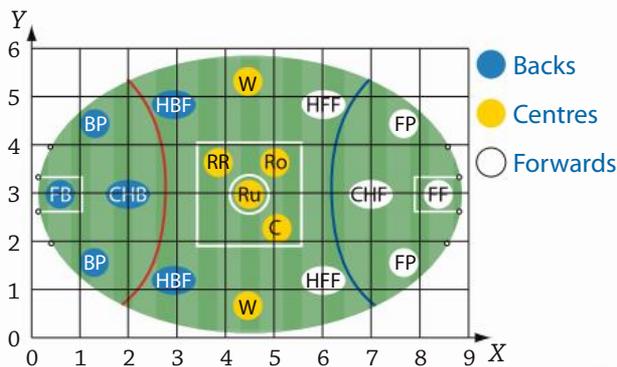
If $b = 6$, find the value of $7b$

42

22. [Equations]
 $20 - 9 = 11$

23. [Coordinates]

In this AFL starting line up, what are the coordinates of the Centre Half Back (CHB)?



(2,3)

24. [Units of Measurement / Time] *

$5\frac{1}{2}$ m = 550 cm

25. [Perimeter] *

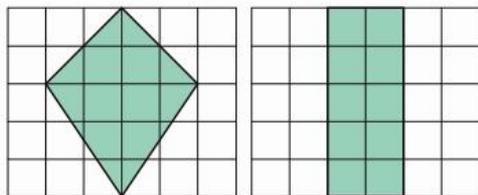
Use a ruler to find the perimeter of the trapezium in millimetres.



160 mm

26. [Area / Volume] *

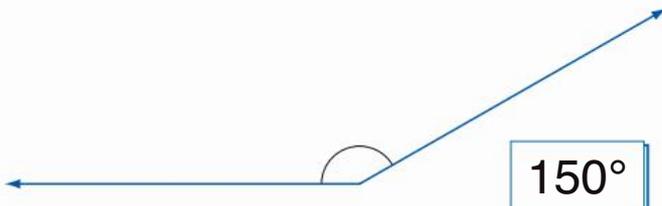
Do the kite and the rectangle have the same area?



yes

27. [Shapes]

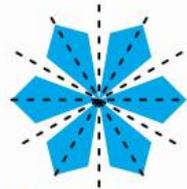
Without measuring, would you estimate that the size of this angle is closer to 150° or to 160°?



150°

28. [Location / Transformation]

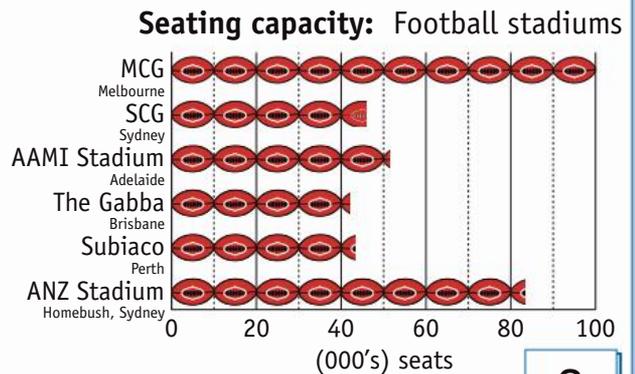
Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



6

29. [Statistics]

How many stadiums have a seating capacity between 40 000 and 50 000?



3

30. [Probability]

'The first baby born next year will be a girl.' Which expression best represents the probability of this event?

- A) impossible
- B) a 50/50 chance
- C) very likely
- D) certain

B

31. [Problem Solving 1] *

Nine trucks are equal in weight to six trucks and four sedans. What fraction of the weight of a truck is the weight of a sedan?

$\frac{3}{4}$

32. [Problem Solving 2] *

Barbie makes an average of 4 calls a day, 5 days a week on her mobile phone. Which phone plan is the cheapest for Barbie?

Smart Talk Phone Plans

Plan A	- \$4.00 per week plus 30¢ per call
Plan B	- \$1.60 per week plus 40¢ per call
Plan C	- \$0 per week plus 60¢ per call

Plan B

33. [Problem Solving 3] *

The sum of four consecutive odd numbers is 80. What is the largest of these numbers?

23



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Synchronism: That's when you're running late and you hope your bus is too.
P. K. Shaw

1. [+ Whole Numbers to 10]

	5	7	1	4	9	8	6	3	2	10
+ 7	12	14	8	11	16	15	13	10	9	17

2. [- Whole Numbers to 10]

	6	8	3	10	7	9	12	4	11	5
- 2	4	6	1	8	5	7	10	2	9	3

3. [× Whole Numbers to 12]

	2	6	4	8	5	10	11	9	3	7
× 10	20	60	40	80	50	100	110	90	30	70

4. [+ Whole Numbers to 12]

	66	12	54	18	48	42	60	36	30	24
÷ 6	11	2	9	3	8	7	10	6	5	4

5. [Large Number +,-]

$$\begin{array}{r} 4031 \\ + 4126 \\ \hline \end{array}$$

8157

6. [Large Number ×,+]

$$\begin{array}{r} 925 \\ \times 1000 \\ \hline \end{array}$$

925000

7. [Decimal +,-]

$$\begin{array}{r} 89.7 \\ - 60.8 \\ \hline \end{array}$$

28.9

8. [Decimal ×,+] *

$$1.39 \times 1000 =$$

1390

9. [Fraction +,-] *

$$\frac{11}{3} - \frac{4}{3} =$$

2 $\frac{1}{3}$

10. [Fraction ×,+] *

$$\frac{1}{6} \times 8 =$$

1 $\frac{1}{3}$

11. [Percentages]

If 8% of children have a food allergy, what percentage of children do not have a food allergy?

92%

12. [Decimals / Fractions / Percentages]

$$\text{Simplify } \frac{10}{15}$$

$\frac{2}{3}$

13. [Integers]

Arrange in order from hottest to coldest:

2°C, -1°C, 7°C, -4°C

7°C, 2°C, -1°C, -4°C

14. [Rates / Ratios]

Simplify the ratio
30 days : 12 days

5:2

15. [Indices / Square Roots]

$$8^2 =$$

64

16. [Order of Operations] *

$$4 + 20 \div 4 =$$

9

17. [Exploring Numbers]

What is the value of the underlined digit in the number 41603?

600

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 8 and 10?

40

19. [Number Patterns]

Complete the pattern:

$$\frac{21}{7}, \frac{18}{7}, \frac{15}{7}, \frac{12}{7}, \frac{9}{7}, \frac{6}{7}$$

20. [Expressions]

Simplify
 $jk + jk - jk + jk - jk$

jk

21. [Substitution] *

If $a = 12$, find the value of
 $\frac{a}{4}$

3

22. [Equations]

$$24 - 18 = 6$$

23. [Coordinates]

Which city is located at the coordinates (9,4)?

Barcelona

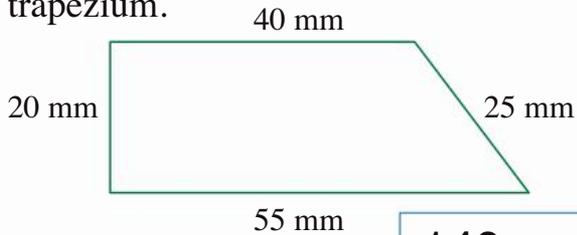


24. [Units of Measurement / Time] *

70 cm = 700 mm

25. [Perimeter] *

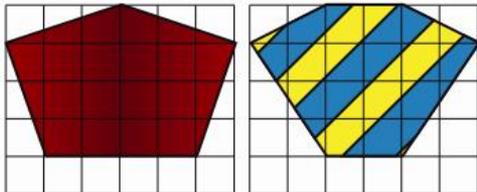
Calculate the perimeter of the trapezium.



140 mm

26. [Area / Volume] *

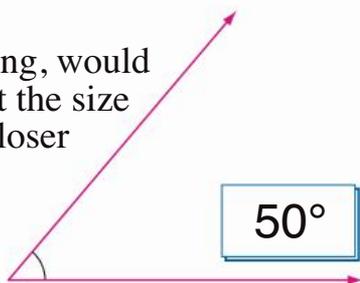
Do the knots of these neckties have the same area?



no

27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 40° or to 50°?



50°

28. [Location / Transformation]

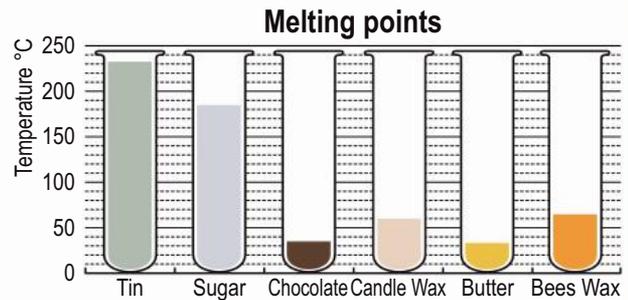
Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



8

29. [Statistics]

Which substance has a melting point close to four times that of candle wax?



tin

30. [Probability]

'The 25th of December will be a public holiday.'

Which expression best represents the probability of this event?

- A) impossible
- B) a 50/50 chance
- C) very likely
- D) certain

D

31. [Problem Solving 1] *

Use each of the digits 1 to 5 to make a three-digit number and a two-digit number that have the greatest difference.

543, 12

32. [Problem Solving 2]

The numbers 1, 2, 3, 4 and 5 are arranged on the grid so that every number appears exactly once in each row and column. Fill in the missing numbers.

1	2	3	4	5
4	3	2	5	1
5	1	4	3	2
2	4	5	1	3
3	5	1	2	4

33. [Problem Solving 3] *

Three clocks in the bus station give the following readings:



One clock is 20 minutes fast. At least one clock is slow. One clock is off by half an hour. What time is it?

8:30



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Better to ask the question than to remain ignorant forever. William George Plunkett

1. [+ Whole Numbers to 10]

	12	9	10	7	13	6	11	5	18	14
+ 1	13	10	11	8	14	7	12	6	19	15

2. [- Whole Numbers to 10]

	14	7	9	11	8	10	12	5	13	16
- 4	10	3	5	7	4	6	8	1	9	12

3. [× Whole Numbers to 12]

	7	3	8	4	1	10	5	6	9	2
× 11	77	33	88	44	11	110	55	66	99	22

4. [÷ Whole Numbers to 12]

	28	63	21	42	56	70	35	49	77	14
÷ 7	4	9	3	6	8	10	5	7	11	2

5. [Large Number +,-]

$$\begin{array}{r} 6739 \\ - 6284 \\ \hline 455 \end{array}$$

10. [Fraction ×,+] *

 $\frac{1}{3}$ of \$45 = \$15

16. [Order of Operations] *

 $9 - (3 + 2) + 8 =$ 12

11. [Percentages]

70% of 100 = 70

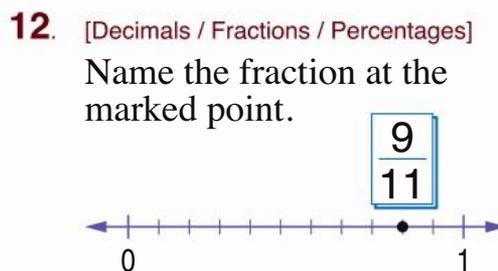
17. [Exploring Numbers]

In the number 3.26 which digit is in the tenths place?

2

6. [Large Number ×,+]

$$\begin{array}{r} 94 \\ 2 \overline{) 188} \\ \underline{20} \\ 88 \\ \underline{80} \\ 8 \end{array}$$



18. [Multiples / Factors / Primes] *

Is 5 a factor of 7565?

yes

7. [Decimal +,-]

$$\begin{array}{r} 5.76 \\ + 1.28 \\ \hline 7.04 \end{array}$$

13. [Integers]

Use < or > to make a true statement.

 0 > -4

19. [Number Patterns]

Complete the table:

	Blinks				
men	1	2	3	4	5
women	2	4	6	8	10

8. [Decimal ×,+]

$$\begin{array}{r} 1.5 \\ \times 7 \\ \hline 10.5 \end{array}$$

14. [Rates / Ratios] *

It took Aisha 4 hours to complete a 16 km walk. What was her average speed in kilometres per hour?

4 km/h

20. [Expressions]

Simplify $2z + 2z$

4z

9. [Fraction +,-] *

 $2\frac{3}{5} + 1\frac{1}{5} =$ $3\frac{4}{5}$

15. [Indices / Square Roots]

 $10^3 =$ 1000

21. [Substitution] *

If $x = 3$, find the value of $3x + 1$

10

22. [Equations]

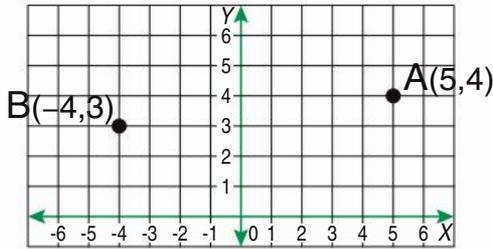
 $8 \times$ 3 $= 24$

23. [Coordinates]

Plot the following points on this Cartesian plane:

A at coordinates (5,4)

B at coordinates (-4,3)

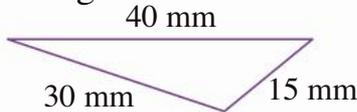


24. [Units of Measurement / Time] *

8000 g = kg

25. [Perimeter] *

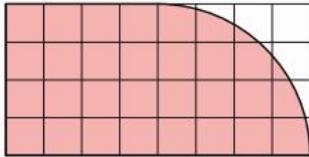
Calculate the perimeter of the scalene triangle.



26. [Area / Volume] *

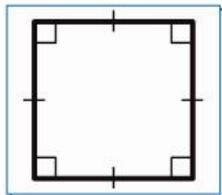
Find the area of the shaded shape.

[Round to the nearest whole number.]



27. [Shapes]

Draw a square marking the equal sides and equal angles.



28. [Location / Transformation] *

Using the scale, what is the distance from Groningen to Rotterdam?

[Round off to the nearest 10 km.]



29. [Statistics]

How many Australian deserts measure between 100 000 and 200 000 km²?

Desert	Size (km ²)	% of Aus
Great Victoria (WA, SA)	348 750	4.5
Great Sandy (WA)	267 250	3.5
Tanami (WA, NT)	184 500	2.4
Simpson (NT, QLD, SA)	176 500	2.3
Gibson (WA)	156 000	2.0
Little Sandy (WA)	111 500	1.5
Strzelecki (SA, QLD, NSW)	80 250	1.0
Sturt Stony (SA, QLD, NSW)	29 750	0.3
Tirari (SA)	15 250	0.2
Pedirka (SA)	1 250	<0.1
Total	1 371 000	18

30. [Probability]

How many different outcomes are possible when flipping two coins?

[Complete the table.]

Possible outcomes		Coin 1	
		H	T
Coin 2	H	H,H	H,T
	T	T,H	T,T



31. [Problem Solving 1] *

A rectangular photograph measures 3 cm wide and 4 cm long. If it was enlarged proportionally to be 12 cm long, how wide would it be?

32. [Problem Solving 2] *

A date is said to be *lucky* if, when written in the format *D/M/YY*, the product of the month and the day equals the two digits of the year. How many lucky dates will there be in 2024?

[e.g. 3/4/12 is a lucky date $\Rightarrow 3 \times 4 = 12$ but 1/12/12 is not a lucky date, as the month is in *MM* format.]

33. [Problem Solving 3] *

Neon sign #1 turns on for 4 seconds then off for 2 seconds. Neon sign #2 turns on for 4 seconds then off for 6 seconds. Both signs are started at the same time and repeat their cycles endlessly. How many times per minute do they start their cycles together?



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Newton's Unknown Law - A bird in the hand is safer than one overhead.
Rossiter

1. [+ Whole Numbers to 10]

	16	12	9	11	7	18	10	5	13	4
+ 6	22	18	15	17	13	24	16	11	19	10

2. [- Whole Numbers to 10]

	15	12	8	19	10	13	16	11	14	17
- 7	8	5	1	12	3	6	9	4	7	10

3. [× Whole Numbers to 12]

	10	6	8	11	4	9	3	5	7	12
× 2	20	12	16	22	8	18	6	10	14	24

4. [+ Whole Numbers to 12]

	27	45	63	18	81	99	72	54	90	36
÷ 9	3	5	7	2	9	11	8	6	10	4

5. [Large Number +,-]

$$\begin{array}{r} 1085 \\ - 762 \\ \hline \end{array}$$

323

6. [Large Number ×,+]

$$\begin{array}{r} 84 \\ 3 \overline{) 252} \end{array}$$

7. [Decimal +,-]

$$\begin{array}{r} 4.29 \\ + 1.56 \\ \hline \end{array}$$

5.85

8. [Decimal ×,+]

$$\begin{array}{r} 2.6 \\ \times 4 \\ \hline \end{array}$$

10.4

9. [Fraction +,-] *

$$2\frac{3}{5} - 1\frac{1}{5} = 1\frac{2}{5}$$

10. [Fraction ×,+] *

$$\frac{1}{5} \text{ of } \$20 =$$

\$4

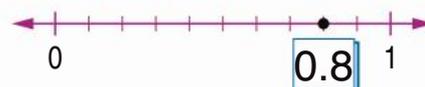
11. [Percentages]

$$45\% \text{ of } 100 =$$

45

12. [Decimals / Fractions / Percentages]

Name the decimal at the marked point.



13. [Integers]

Use < or > to make a true statement.

$$-1 > -8$$

14. [Rates / Ratios] *

Julie's car travelled 640 km in 8 hours. What was her car's average speed in kilometres per hour?

80 km/h

15. [Indices / Square Roots]

$$10^2 =$$

100

16. [Order of Operations] *

$$15 - (4 - 2) - 5 =$$

8

17. [Exploring Numbers]

What is the value of the underlined digit in the number 0.519?

or $\frac{1}{100}$ 0.01

18. [Multiples / Factors / Primes] *

Is 3 a factor of 3739?

no

19. [Number Patterns]

Complete the table:

Mercedes Benz SL55

km (city)	16	24	32	40	48
litres	2	3	4	5	6

20. [Expressions]

Simplify $4a + 3a$

7a

21. [Substitution] *

If $m = 9$, find the value of $2m - 6$

12

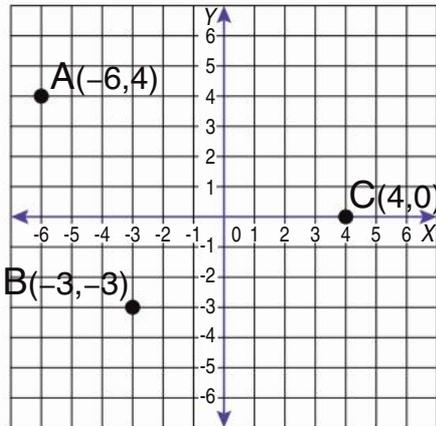
22. [Equations]

$$6 \times 9 = 54$$

23. [Coordinates]

Plot the following points on this Cartesian plane:

- A at coordinates (-6,4)
- B at coordinates (-3,-3)
- C at coordinates (4,0)

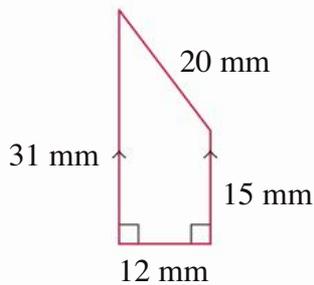


24. [Units of Measurement / Time] *

$5\frac{1}{4}$ kg = **5250** g

25. [Perimeter] *

Calculate the perimeter of the trapezium.

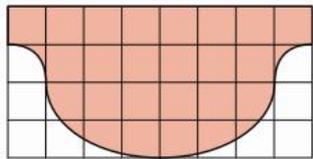


78 mm

26. [Area / Volume] *

Find the area of the shaded shape.

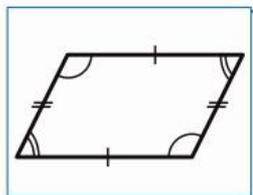
[Round to the nearest whole number.]



24 sq. units

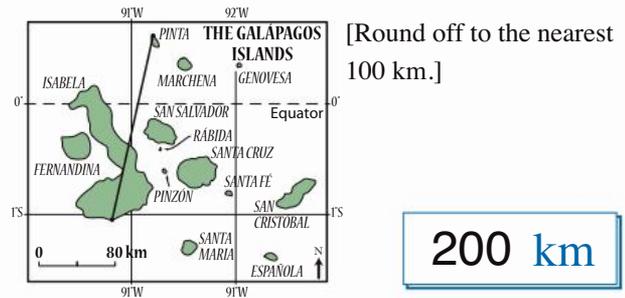
27. [Shapes]

Draw a parallelogram marking the equal sides and equal angles.



28. [Location / Transformation] *

Using the scale, what is the marked distance on the map?



[Round off to the nearest 100 km.]

200 km

29. [Statistics]

Which USA pencil number corresponds to a HB pencil ?

Tone	
USA #	4 3 2.5 2 1
World #	9H 8H 7H 6H 5H 4H 3H 2H H F HB B 2B 3B 4B 5B 6B 7B 8B 9B
Hardness	Hardest ← Medium → Softest

2

30. [Probability]

How many different outcomes are possible when spinning a spinner labelled 1, 2, 3, 4 and flipping a coin? [Complete the table.]

Possible outcomes		Spinner			
		1	2	3	4
Coin	H	H,1	H,2	H,3	H,4
	T	T,1	T,2	T,3	T,4



8

31. [Problem Solving 1] *

Jeanne Louise Calment of France lived to be the oldest human on record. Mitoyo Kawate of Japan lived 8 years less than Calment. If the sum of their ages is 236 years, how old was Calment when she died?

122

32. [Problem Solving 2] *

A set of scales is used to show that two lemons and seven tomatoes are required to balance one cabbage. If two lemons balance one tomato, how many tomatoes will balance one cabbage?

8

33. [Problem Solving 3] *

Fill in the magic square. [Every row, column and diagonal has the same sum.]

7	12	1	14
2	13	8	11
16	3	10	5
9	6	15	4



Name:

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QUOTE OF THE WEEK

A great pleasure in life is doing what people say you cannot do.
Walter Gagehot

1. [+ Whole Numbers to 10]

	14	17	12	9	8	11	3	10	16	5
+ 3	17	20	15	12	11	14	6	13	19	8

2. [- Whole Numbers to 10]

	20	19	13	16	18	12	17	15	11	14
- 10	10	9	3	6	8	2	7	5	1	4

3. [× Whole Numbers to 12]

	7	10	3	2	5	4	8	6	9	11
× 8	56	80	24	16	40	32	64	48	72	88

4. [+ Whole Numbers to 12]

	12	72	36	84	120	24	96	48	108	60
÷ 12	1	6	3	7	10	2	8	4	9	5

5. [Large Number +,-]

$$\begin{array}{r} 2479 \\ - 653 \\ \hline \end{array}$$

1826

10. [Fraction ×,-] *

$$\frac{1}{2} \text{ of } \$50 =$$

\$ 25

16. [Order of Operations] *

$$9 + 13 - (4 + 7) =$$

11

6. [Large Number ×,+]

$$\begin{array}{r} 228 \\ 5 \overline{) 1140} \\ \underline{10} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

11. [Percentages]

$$8\% \text{ of } 100 =$$

8

17. [Exploring Numbers]

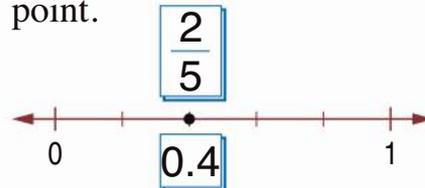
What is the value of the underlined digit in the number 0.047?

$$\text{or } \frac{7}{1000}$$

0.007

12. [Decimals / Fractions / Percentages]

Name the fraction and the decimal at the marked point.



18. [Multiples / Factors / Primes] *

Is 752 divisible by 8?

yes

7. [Decimal +,-]

$$\begin{array}{r} 61.7 \\ + 28.3 \\ \hline \end{array}$$

90.0

13. [Integers]

Use < or > to make a true statement.

$$9 \quad > \quad -3$$

19. [Number Patterns]

Complete the table:

	Rent				
Number of bedrooms	1	2	3	4	5
Cost per week (\$)	200	275	350	425	500

8. [Decimal ×,+]

$$\begin{array}{r} 3.9 \\ \times 3 \\ \hline \end{array}$$

11.7

14. [Rates / Ratios] *

The cruising speed of a Boeing 787 Dreamliner is 250 m/s. At this rate what distance does it travel in one minute?

15 000 m

20. [Expressions]

Simplify $6t + t$

7t

9. [Fraction +,-] *

$$4\frac{2}{9} - 1\frac{7}{9} =$$

2 $\frac{4}{9}$

15. [Indices / Square Roots]

$$10^1 =$$

10

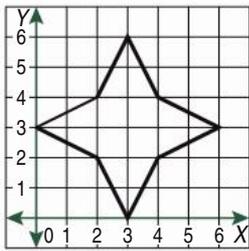
22. [Equations]

$$5 \times 7 = 35$$

5

23. [Coordinates]

Starting at (2,4), draw a line to (3,6) then continue to (4,4), (6,3), (4,2), (3,0), (2,2) and (0,3). What shape have you drawn?



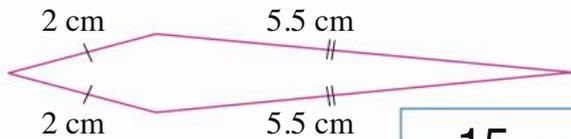
star

24. [Units of Measurement / Time] *

60 000 kg = **60** tonnes

25. [Perimeter] *

Calculate the perimeter of the kite.

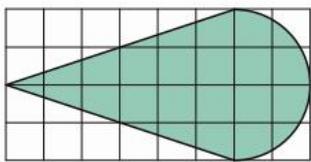


15 cm

26. [Area / Volume] *

Find the area of the shaded shape.

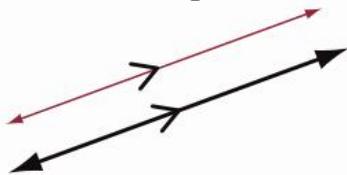
[Round to the nearest whole number.]



18 sq. units

27. [Shapes]

Draw a line parallel to this line.



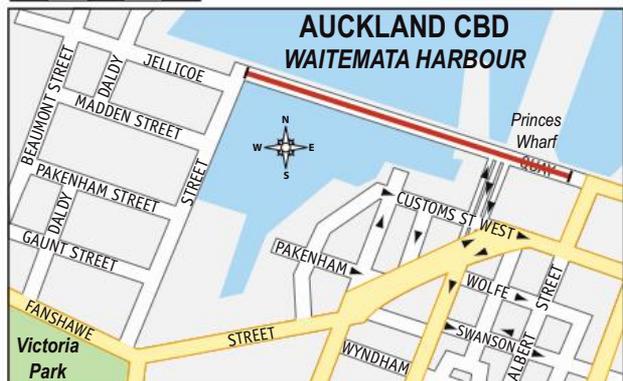
28. [Location / Transformation] *

Using the scale, what is the marked distance on the map?

[Round off to the nearest 100 m.]



1800 m



29. [Statistics]

Which state or territory has the highest speed limit?

Australian Speed Limits				
State/Territory	School zone	Built-up area	Rural area	Highest speed zone
ACT	40	50	100	100
NSW	40	50	100	110
NT	40	60	110	130
QLD	40	50	100	110
SA	25	50	100	110
Tas	40	50	100	110
Vic	40	50	100	110
WA	40	50	110	110

NT

30. [Probability]

Doug can buy a V-necked or round necked shirt in orange or blue, with a pocket or no pocket. Find the size of the sample space. [Complete the table.]

Outcomes (sample space)		
V-necked	orange	pocket
V-necked	orange	no pocket
V-necked	blue	pocket
V-necked	blue	no pocket
round	orange	pocket
round	orange	no pocket
round	blue	pocket
round	blue	no pocket

8

31. [Problem Solving 1] *

Write the missing operations:

5 **+** 8 - 20 **÷** 5 = 9

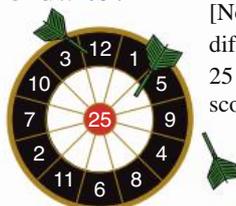
32. [Problem Solving 2] *

A certain bacteria doubles its population every 15 minutes. How many bacteria will you end up with if you leave 10 bacteria to multiply for 3 hours?

40 960

33. [Problem Solving 3] *

On this dart board the outer ring scores as shown, the middle ring scores double and the inner ring scores 25 points. In how many ways can you score 6 using 3 darts?



[Note: 8 + 25 + 2 is not counted as different to 25 + 2 + 8 but it is different to 25 + double 4 + 2. This example shows a score of 12 + double 5 + miss = 22]

16



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
You ain't learnin' when you're talkin'.
Lyndon B. Johnson

1. [+ Whole Numbers to 10]

	4	7	13	9	11	5	12	8	10	6
+ 8	12	15	21	17	19	13	20	16	18	14

2. [- Whole Numbers to 10]

	12	16	20	13	7	9	18	5	14	11
- 2	10	14	18	11	5	7	16	3	12	9

3. [× Whole Numbers to 12]

	4	5	11	8	9	3	10	12	7	6
× 12	48	60	132	96	108	36	120	144	84	72

4. [÷ Whole Numbers to 12]

	40	16	28	12	32	44	20	24	48	36
÷ 4	10	4	7	3	8	11	5	6	12	9

5. [Large Number +,-]

$$\begin{array}{r} 5874 \\ - 1932 \\ \hline 3942 \end{array}$$

10. [Fraction ×,+] *

 $\frac{3}{4}$ of \$100 = \$ 75

16. [Order of Operations] *

 $6 - (8 - 2) + 5 =$ 5

11. [Percentages]

18% of 100 = 18

17. [Exploring Numbers]

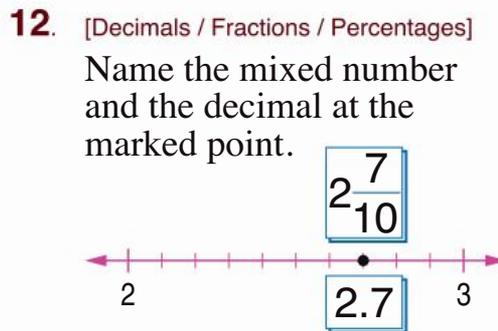
In which number does the digit 9 have greater value?

A) 906 A

B) 3095

6. [Large Number ×,+]

$$\begin{array}{r} 54 \\ 8 \overline{) 432} \end{array}$$



18. [Multiples / Factors / Primes] *

Is 235 divisible by 9?

no

7. [Decimal +,-]

$$\begin{array}{r} 45.8 \\ + 7.4 \\ \hline 53.2 \end{array}$$

13. [Integers]

Use < or > to make a true statement.

 -6 < 2

19. [Number Patterns]

Complete the table:

Calories consumed (hundreds)					
adults	35	70	105	140	175
day	1	2	3	4	5

8. [Decimal ×,+]

$$\begin{array}{r} 4.8 \\ \times 6 \\ \hline 28.8 \end{array}$$

14. [Rates / Ratios] *

The top speed of a cruise ship is 35 km/h. At this rate what distance does it travel in 12 hours?

420 km

20. [Expressions]

Simplify $2a + 8a$

10a

9. [Fraction +,-] *

 $4\frac{5}{10} + \frac{1}{10} =$ 4 $\frac{3}{5}$

15. [Indices / Square Roots]

 $10^4 =$ 10000

21. [Substitution] *

If $s = 8$, find the value of $\frac{s+1}{3}$

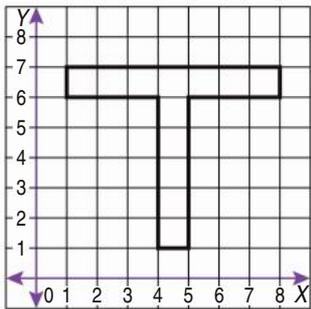
3

22. [Equations]

12 $\times 4 = 48$

23. [Coordinates]

Starting at (1,6), draw a line to (1,7) then continue to (8,7), (8,6), (5,6), (5,1), (4,1), (4,6) and back to (1,6). What letter have you drawn?



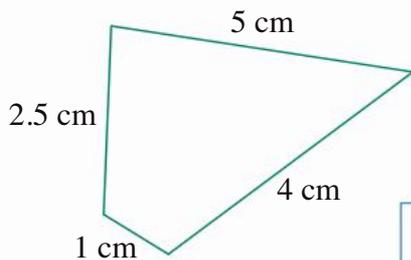
T

24. [Units of Measurement / Time] *

5 t = **5000** kg

25. [Perimeter] *

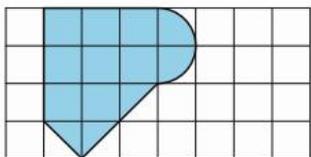
Calculate the perimeter of the quadrilateral.



12.5 cm

26. [Area / Volume] *

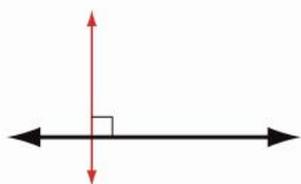
Find the area of the shaded shape. [Round to the nearest whole number.]



11 sq. units

27. [Shapes]

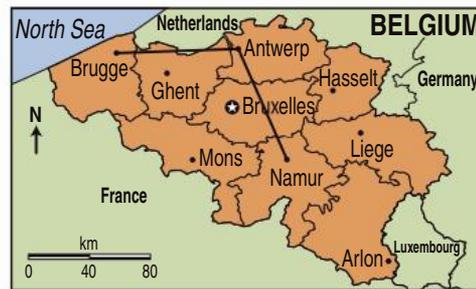
Draw a line perpendicular to this vertical line.



28. [Location / Transformation] *

Using the scale, what is the marked distance between Brugge and Namur, via Antwerp? [Round off to the nearest 10 km.]

160 km



29. [Statistics]

Using this salinity scale, how would you classify water with a salinity of 2%?

Water Salinity			
Fresh water	Brackish water	Saline water	Brine
<0.05 %	0.05 - 3%	3 - 5%	>5%
<0.5 ppt	0.5 - 30 ppt	30 - 50 ppt	>50 ppt

ppt = parts per 1000

brackish

30. [Probability]

Po can choose a 64 GB or a 128 GB smart phone in either white, pink or black. Find the size of the sample space. [Complete the table.]

Outcomes (sample space)	
64 GB	white
64 GB	pink
64 GB	black
128 GB	white
128 GB	pink
128 GB	black

6

31. [Problem Solving 1] *

How many different flags with 3 stripes are possible, using the colours red (R), blue (B) and yellow (Y)? Each colour can be used only once in each flag.



6

32. [Problem Solving 2] *

Two positive numbers have a sum of 12 and a product of 32. Find the two numbers.

4, 8

33. [Problem Solving 3] *

Some digits are missing from this credit card number. If the sum of any three consecutive digits is 20, what is the value of x ?

5 8 7 5 8 7 5 8 $\frac{7}{x}$ 5 8 7 5 8 7 5 **7**



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Jones' Motto - Friends come and go but enemies accumulate.
Rossiter

1. [+ Whole Numbers to 10]

	11	6	12	7	15	18	3	9	14	1
+ 4	15	10	16	11	19	22	7	13	18	5

2. [- Whole Numbers to 10]

	7	14	5	19	6	13	11	8	12	10
- 5	2	9	0	14	1	8	6	3	7	5

3. [× Whole Numbers to 12]

	4	6	11	3	7	12	8	5	10	9
× 7	28	42	77	21	49	84	56	35	70	63

4. [+ Whole Numbers to 12]

	9	36	18	15	33	27	21	24	12	30
÷ 3	3	12	6	5	11	9	7	8	4	10

5. [Large Number +, -]

$$\begin{array}{r} 1065 \\ + 283 \\ \hline \end{array}$$

1348

10. [Fraction ×, ÷] *

$$3 \div \frac{1}{2} =$$

6

16. [Order of Operations] *

$$(16 - 8) \div 2 =$$

4

6. [Large Number ×, ÷]

$$\begin{array}{r} 75 \\ \times 4 \\ \hline \end{array}$$

300

11. [Percentages] *

$$10\% \text{ of } \$300 =$$

\$ 30

17. [Exploring Numbers]

Express in numerals:
four thousand and
sixty-two

4062

12. [Decimals / Fractions / Percentages]

Complete the equivalent
fractions:

$$\frac{2}{3} = \frac{24}{36}$$

36

18. [Multiples / Factors / Primes]

List all the factors of 15 in
ascending order.

1, 3, 5, 15

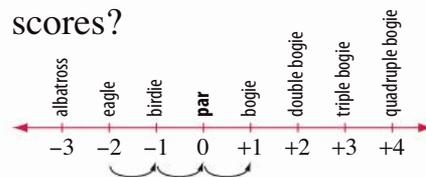
7. [Decimal +, -]

$$\begin{array}{r} 4.12 \\ - 3.57 \\ \hline \end{array}$$

0.55

13. [Integers]

If Inbee Park scores an eagle and Tiger Woods scores a bogie, what is the difference between their scores?



3

19. [Number Patterns]

Complete the pattern:

3, 6, 12, 24, 48, 96

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.06 \\ 8 \overline{) 0.48} \end{array}$$

14. [Rates / Ratios] *

The slowest water animal is the seahorse. It moves at 16 metres per hour. At this rate how far does it move in 3 hours?

48 m

20. [Expressions]

Simplify
 $c + 2c + 3c$

6c

9. [Fraction +, -] *

$$3 - \frac{3}{5} =$$

2 $\frac{2}{5}$

15. [Indices / Square Roots]

$$\sqrt{9} =$$

3

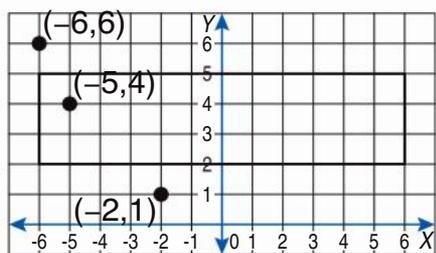
22. [Equations]

$$25 - 6 = 19$$

23. [Coordinates]

Which ordered pair lies within this rectangle?

- A) (-2,1) B) (-6,6) C) (-5,4)



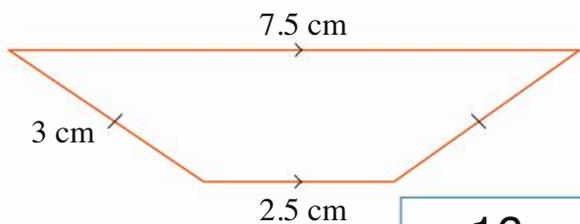
C

24. [Units of Measurement / Time] *

3000 cm = 30 m

25. [Perimeter] *

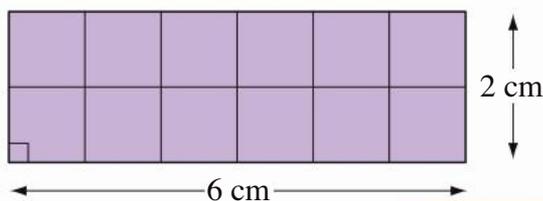
Calculate the perimeter of the trapezium.



16 cm

26. [Area / Volume] *

Using Area = length × width, find the area of the rectangle.



12 cm²

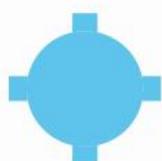
27. [Shapes]

Circle the triangle that is acute-angled.



28. [Location / Transformation]

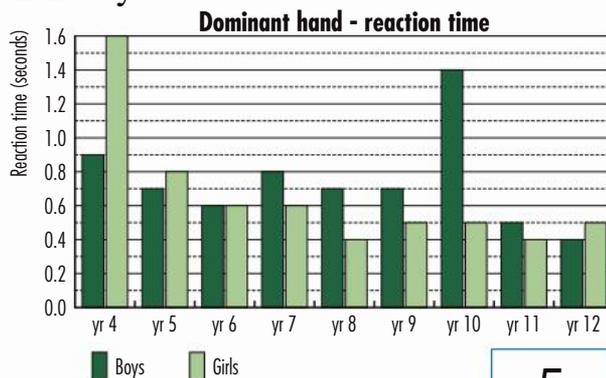
By how many degrees must this shape be rotated to first match the original position?



90°

29. [Statistics]

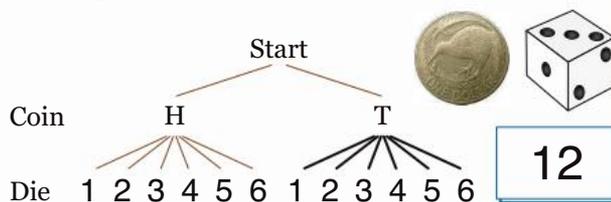
In how many of the school years shown do girls have a quicker reaction time than boys?



5

30. [Probability]

How many different outcomes are possible when flipping a coin and rolling a die? [Complete the tree diagram.]



12

31. [Problem Solving 1] *

Isabelle wanted to arrange her football cards in pairs but was one card short. She tried to arrange them by fives and was still one card short. She finally arranged her cards by sevens. What is the least number of cards she could have had?

49

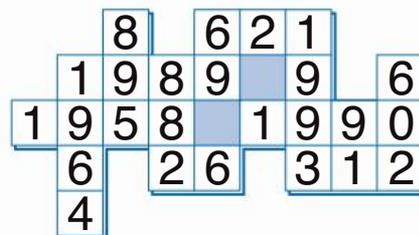
32. [Problem Solving 2]

Fill in the cross number puzzle using the following numbers:

2 digits: 26 69 91

3 digits: 312 602 621 882 895

4 digits: 1958 1964 1989 1990 1993



33. [Problem Solving 3] *

Find the number of palindromes between 10 000 and 99 999 that are divisible by 25.

[A *palindrome* is a number that reads the same forwards and backwards, such as 22 or 91 319]

20



Name:

Due Date: / /

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QUOTE OF THE WEEK
Doing beats stewing.
Arnold Glasgow

1. [+ Whole Numbers to 10]

	2	6	3	4	10	8	6	5	9	7
+ 10	12	16	13	14	20	18	16	15	19	17

2. [- Whole Numbers to 10]

	13	16	7	12	4	9	18	10	11	5
- 3	10	13	4	9	1	6	15	7	8	2

3. [× Whole Numbers to 12]

	7	3	2	6	10	8	4	5	9	11
× 5	35	15	10	30	50	40	20	25	45	55

4. [+ Whole Numbers to 12]

	96	80	88	40	48	64	32	56	24	72
÷ 8	12	10	11	5	6	8	4	7	3	9

5. [Large Number +,-]

$$\begin{array}{r} 2105 \\ + 7635 \\ \hline \end{array}$$

9740

10. [Fraction ×,+] *

$$2 \div \frac{1}{5} =$$

10

15. [Indices / Square Roots]

$$\sqrt{25} =$$

5

16. [Order of Operations] *

$$3 \times (2 + 4) =$$

18

17. [Exploring Numbers]

Express in numerals:
ten thousand, four hundred
and thirty-nine

10439

6. [Large Number ×,+]

$$\begin{array}{r} 38 \\ \times 6 \\ \hline \end{array}$$

228

12. [Decimals / Fractions / Percentages]

Complete the equivalent
fractions:

$$\frac{28}{32} = \frac{7}{8}$$

18. [Multiples / Factors / Primes]

List all the factors of 28 in
ascending order.

1, 2, 4, 7, 14, 28

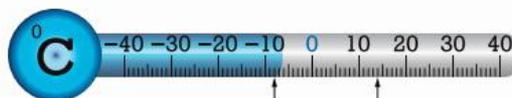
7. [Decimal +,-]

$$\begin{array}{r} 7.36 \\ - 4.98 \\ \hline \end{array}$$

2.38

13. [Integers]

What is the difference
between Mexicali's lowest
temperature and
McMurdo's highest
temperature?



22 °C

8. [Decimal ×,+]

$$\begin{array}{r} 0.09 \\ 7 \overline{) 0.63} \end{array}$$

0.09

14. [Rates / Ratios] *

The slowest bird is the
American woodcock. It
flies at 8 km/h. At this rate
how far does it fly in
7 hours?

56 km

19. [Number Patterns]

Complete the pattern:

1, 3, 9, 27, 81, 243

20. [Expressions]

Simplify
 $2m + 4m + m$

7m

21. [Substitution] *

If $k = -4$, find the
value of $k + 7$

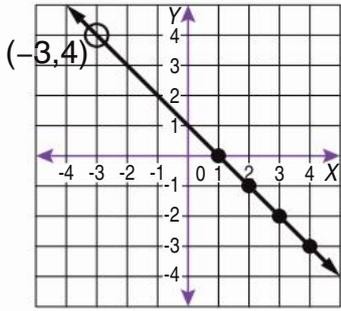
3

22. [Equations]

$$9 \times 8 = 72$$

23. [Coordinates]

These dots, if joined, would form a line. Another point on this line has an x -coordinate of -3 . What is the y -coordinate of this point?



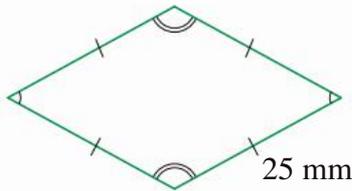
(-3, 4)

24. [Units of Measurement / Time] *

2500 mm = **250** cm

25. [Perimeter] *

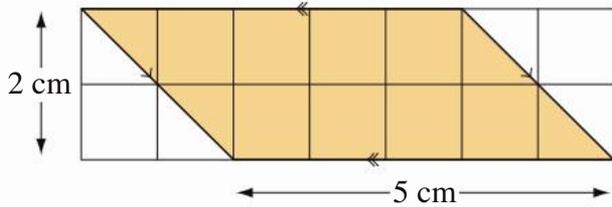
Calculate the perimeter of the rhombus.



100 mm

26. [Area / Volume] *

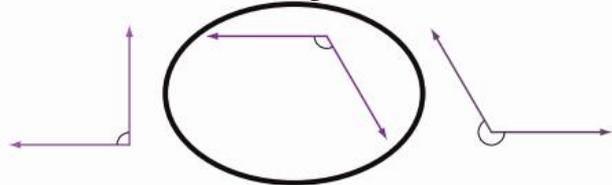
Using Area = base \times height, find the area of the parallelogram.



10 cm²

27. [Shapes]

Circle the obtuse angle.



28. [Location / Transformation]

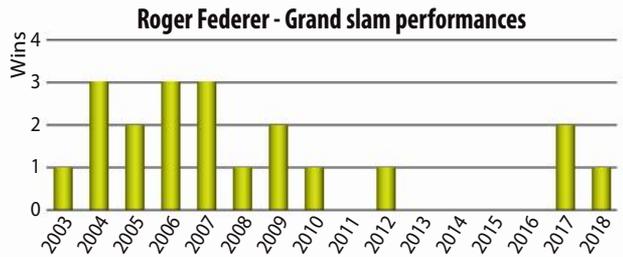
By how many degrees must the big hand of this clock rotate to show exactly 10:40?



60°

29. [Statistics]

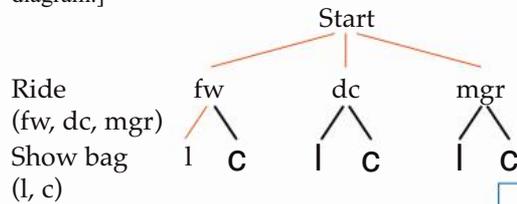
In which year did Federer win his tenth grand slam?



2007

30. [Probability]

At the show you can choose one ride (ferris wheel, dodgem cars, merry-go-round) and one show bag (licorice, comics). How many different combinations are possible? [Complete the tree diagram.]



6

31. [Problem Solving 1] *

Jake remembered that the three digits in his locker combination were 3, 5 and 7, but he forgot the order of the numbers. What is the maximum number of combinations he must check in order to open his locker?

6

32. [Problem Solving 2] *

Maurice averaged 79 points for 6 tests. How many points must he score in the next test to raise his average to 80?

86

33. [Problem Solving 3]

The five neighbouring houses on a street are painted five different colours: yellow, purple, blue, red and green.

- The blue house is not in the middle.
- The distance from the blue house to the red house is the same as the distance from the blue house to the green house.
- The red house is the first neighbour to the west of the yellow house.

What is the order of the houses?



green blue red yellow purple



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

There's one thing to be said for inviting trouble: it generally accepts.
Mae Maloo

1. [+ Whole Numbers to 10]

	8	12	4	7	5	9	6	13	1	10
+ 7	15	19	11	14	12	16	13	20	8	17

2. [- Whole Numbers to 10]

	15	9	12	18	16	14	17	13	10	11
- 9	6	0	3	9	7	5	8	4	1	2

3. [× Whole Numbers to 12]

	12	10	11	5	6	8	4	7	3	9
× 3	36	30	33	15	18	24	12	21	9	27

4. [+ Whole Numbers to 12]

	48	12	36	60	18	24	42	6	30	54
÷ 6	8	2	6	10	3	4	7	1	5	9

5. [Large Number +,-]

$$\begin{array}{r} 4362 \\ + 1574 \\ \hline \end{array}$$

5936

10. [Fraction ×,+] *

$$2 \div \frac{2}{7} =$$

7

15. [Indices / Square Roots]

$$\sqrt{49} =$$

7

16. [Order of Operations] *

$$80 \div (4 + 1) =$$

16

11. [Percentages] *

$$20\% \text{ of } \$4.00 =$$

\$0.80

17. [Exploring Numbers]

Write the number 6400 in words.

six thousand, four hundred

6. [Large Number ×,+]

$$\begin{array}{r} 198 \\ \times 4 \\ \hline \end{array}$$

792

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{5} = \frac{36}{60}$$

18. [Multiples / Factors / Primes]

List all the factors of 12 in ascending order.

1, 2, 3, 4, 6, 12

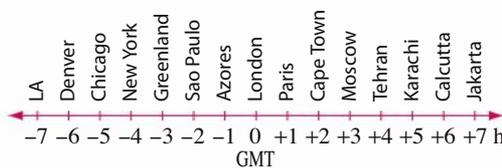
7. [Decimal +,-]

$$\begin{array}{r} 24.5 \\ - 18.9 \\ \hline \end{array}$$

5.6

13. [Integers]

What is the time difference in hours between Greenland and Calcutta?



9 h

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{27}, \frac{1}{9}, \frac{1}{3}, 1, \underline{3}, \underline{9}$$

8. [Decimal ×,+]

$$\begin{array}{r} 0.71 \\ 4 \overline{) 2.84} \end{array}$$

14. [Rates / Ratios] *

A domestic rabbit can run at 56 km/h. At this rate how far can it run in a quarter of an hour?

14 km

20. [Expressions]

Simplify $p + p + 3p$

5p

21. [Substitution] *

If $w = -6$, find the value of $2w + 5$

-7

9. [Fraction +,-] *

$$3 - 1\frac{2}{3} =$$

1\frac{1}{3}

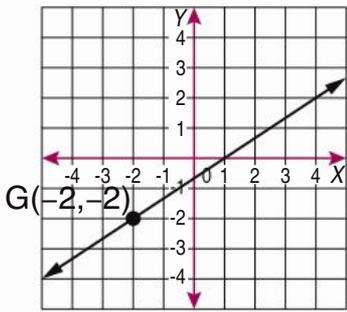
22. [Equations]

$$22 + \underline{18} = 40$$

23. [Coordinates]

Which point lies on the line graphed below?

E(0,1) F(2,3) G(-2,-2) H(-4,-3)



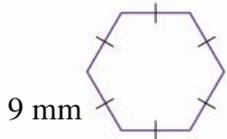
G

24. [Units of Measurement / Time] *

12000 m = km

25. [Perimeter] *

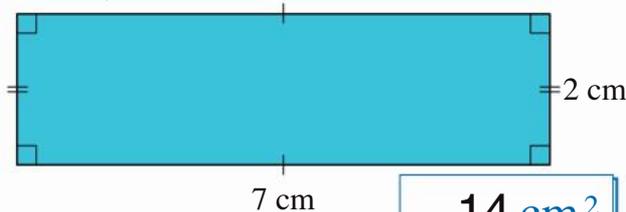
Calculate the perimeter of the regular hexagon.



54 mm

26. [Area / Volume] *

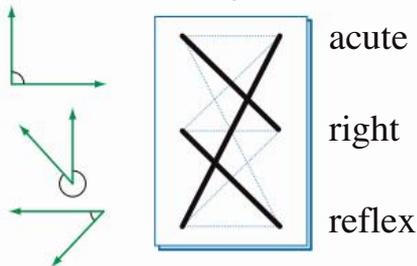
Using $A = lw$ find the area of the rectangle.



14 cm²

27. [Shapes]

Match each angle to its description:



28. [Location / Transformation]

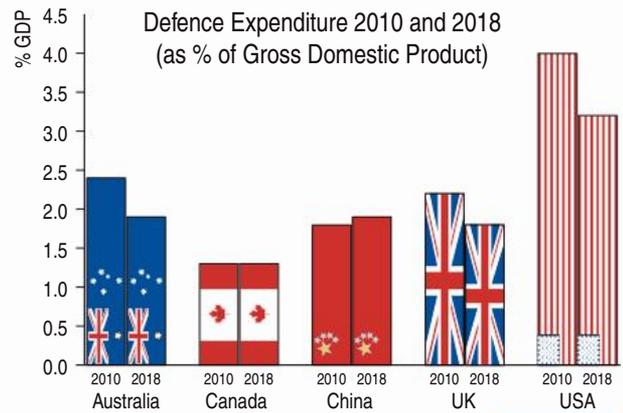
By how many degrees must this shape be rotated to first match the original position?



180°

29. [Statistics]

Of the countries shown, how many decreased their defence expenditure from 2010 to 2018?

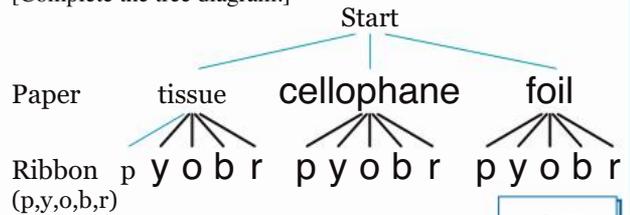


3

30. [Probability]

How many different outcomes are possible if you can choose one kind of wrapping paper (tissue, cellophane, foil) and one coloured ribbon (pink, yellow, orange, blue, red)?

[Complete the tree diagram.]

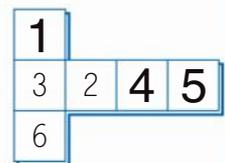


15

31. [Problem Solving 1]

Fill in the spaces so that, when folded, the net will form a standard die.

[On a standard die, opposite sides add to 7]



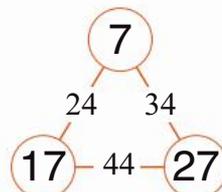
32. [Problem Solving 2] *

If you have 10¢, 20¢ and \$1 coins, in how many ways can you make up \$2?

18

33. [Problem Solving 3] *

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Sattinger's Law - It works better if you plug it in.
Rossiter

1. [+ Whole Numbers to 10]

	15	12	10	6	14	9	8	13	11	7
+ 5	20	17	15	11	19	14	13	18	16	12

2. [- Whole Numbers to 10]

	19	14	16	12	17	11	20	15	18	13
- 8	11	6	8	4	9	3	12	7	10	5

3. [× Whole Numbers to 12]

	5	6	3	12	10	7	11	4	9	8
× 4	20	24	12	48	40	28	44	16	36	32

4. [÷ Whole Numbers to 12]

	121	33	77	99	55	33	88	132	110	44
÷ 11	11	3	7	9	5	3	8	12	10	4

5. [Large Number +, -]

$$\begin{array}{r} 3721 \\ + 5069 \\ \hline \end{array}$$

8790

10. [Fraction ×, ÷] *

$$4 \div \frac{4}{9} =$$

9

17. [Exploring Numbers]

Write the number 23 000 in words.

twenty-three thousand

11. [Percentages] *

$$25\% \text{ of } \$2.00 =$$

50¢

6. [Large Number ×, ÷]

$$\begin{array}{r} 670 \\ \times 5 \\ \hline \end{array}$$

3350

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{5} = \frac{18}{30}$$

18. [Multiples / Factors / Primes]

List all the factors of 30 in ascending order.

1, 2, 3, 5, 6, 10, 15, 30

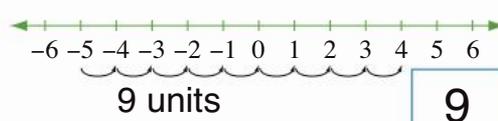
7. [Decimal +, -]

$$\begin{array}{r} 65.1 \\ - 9.7 \\ \hline \end{array}$$

55.4

13. [Integers]

How many units between -5 and 4?



9

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{8}, \frac{1}{2}, 2, 8, \underline{32}, \underline{128}$$

8. [Decimal ×, ÷]

0.21

$$9 \overline{) 1.89}$$

14. [Rates / Ratios] *

A duck flies 150 km in two and a half hours. What is its average speed in kilometres per hour?

60 km/h

20. [Expressions]

Simplify $5j + j - 2j$

4j

9. [Fraction +, -] *

$$5 - 2\frac{5}{6} =$$

2 $\frac{1}{6}$

15. [Indices / Square Roots]

$$\sqrt{36} =$$

6

21. [Substitution] *

If $h = -8$, find the value of $4h$

-32

16. [Order of Operations] *

$$5 \times (12 - 9) =$$

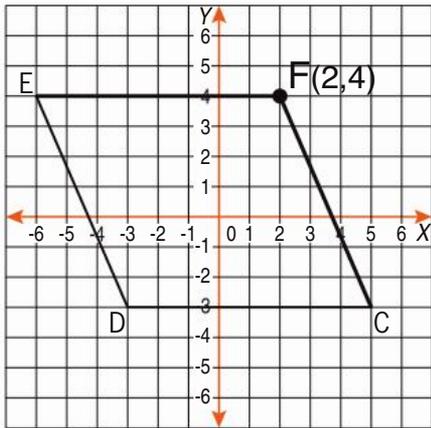
15

22. [Equations]

$$\underline{14} \times 5 = 70$$

23. [Coordinates]

What are the coordinates of point F that will make CDEF a parallelogram?



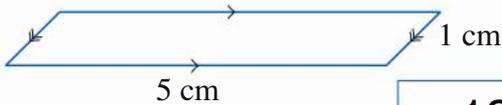
(2,4)

24. [Units of Measurement / Time] *

4.6 m = **4600** mm

25. [Perimeter] *

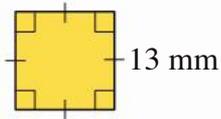
Calculate the perimeter of the parallelogram.



12 cm

26. [Area / Volume] *

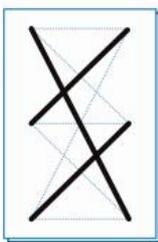
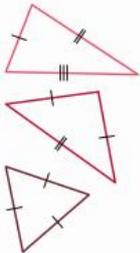
Using $A = l^2$ find the area of the square.



169 mm²

27. [Shapes]

Match each triangle to its description:



isosceles

equilateral

scalene

28. [Location / Transformation]

This compass shows that you are facing east. How many degrees anticlockwise must you turn to face north?

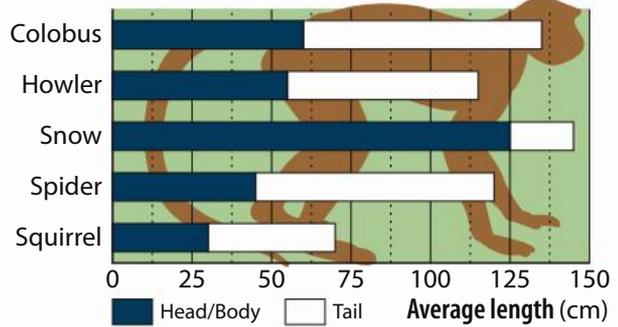


90°

29. [Statistics]

Relative to their head and body length, which of these monkeys has the longest tail?

Average Head/Body and Tail Lengths - Selected Monkey Breeds

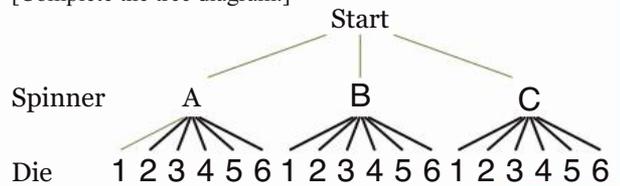


spider monkey

30. [Probability]

How many different outcomes are possible when spinning a spinner labelled A, B, C and rolling a die?

[Complete the tree diagram.]



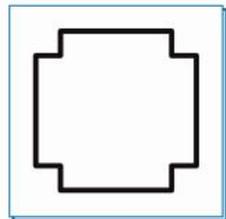
18

31. [Problem Solving 1]

A square piece of paper is folded and then cut as shown:



Draw the shape of the paper when it is unfolded.



32. [Problem Solving 2] *

When Veronica visited Great Britain, one British pound was worth US\$1.40, while AU\$1.00 was worth US\$0.70. In this case, how many AU\$ was a British pound worth?

AU\$ 2.00

33. [Problem Solving 3] *

A certain type of water lily spreads to double the area it covers every year. Ten years after being planted in our lake these water lilies cover a quarter of its surface. How many more years will it be before they cover the entire surface of the lake?

2



Name:

Due Date: / /

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QUOTE OF THE WEEK
You can't get anywhere unless you start.

1. [+ Whole Numbers to 10]

	11	15	17	12	6	14	19	3	18	10
+ 6	17	21	23	18	12	20	25	9	24	16

2. [- Whole Numbers to 10]

	19	15	27	11	12	14	26	13	20	28
- 10	9	5	17	1	2	4	16	3	10	18

3. [× Whole Numbers to 12]

	4	7	10	6	12	5	9	11	8	3
× 12	48	84	120	72	144	60	108	132	96	36

4. [+ Whole Numbers to 12]

	70	35	77	63	56	21	14	42	49	28
÷ 7	10	5	11	9	8	3	2	6	7	4

5. [Large Number +,-]

$$\begin{array}{r} 4238 \\ - 709 \\ \hline \end{array}$$

3529

6. [Large Number ×,+]

$$\begin{array}{r} 85 \\ \times 30 \\ \hline \end{array}$$

2550

7. [Decimal +,-]

$$\begin{array}{r} 65.21 \\ + 7.09 \\ \hline \end{array}$$

72.30

8. [Decimal ×,+]

$$\begin{array}{r} 0.41 \\ \times 4 \\ \hline \end{array}$$

1.64

9. [Fraction +,-] *

$$\frac{7}{8} - \frac{5}{8} =$$

$\frac{1}{4}$

10. [Fraction ×,+]

$$\frac{1}{2} \times \frac{1}{5} =$$

$\frac{1}{10}$

11. [Percentages] *

$$80\% \text{ of } 60 =$$

48

12. [Decimals / Fractions / Percentages] *

Write 0.37 as a percentage.

37%

13. [Integers] *

Amersham station is the highest station in the London Tube at 147 m above sea level. Waterloo station is the lowest station at 21 m below sea level. What is the height difference between the two stations?

168 m

14. [Rates / Ratios]

Simplify the ratio

$$4 : 22 : 30$$

2:11:15

15. [Indices / Square Roots]

$$\sqrt{64} =$$

8

16. [Order of Operations] *

$$1 + 12 \div 4 \times 2 =$$

7

17. [Exploring Numbers]

Round 706 to the nearest ten.

710

18. [Multiples / Factors / Primes]

List all the common factors of 24 and 54.

1, 2, 3, 6

19. [Number Patterns]

Complete the pattern:

$$486, 162, 54, 18,$$

6, 2

20. [Expressions]

Write as an expression:
The sum of z and twelve

$z + 12$

21. [Substitution] *

If $x = 3$ and $y = 8$, find the value of $x + y$

11

22. [Equations]

$$\frac{1}{3} \text{ of } \underline{36} = 12$$

23. [Coordinates]

Complete the table for this rule:

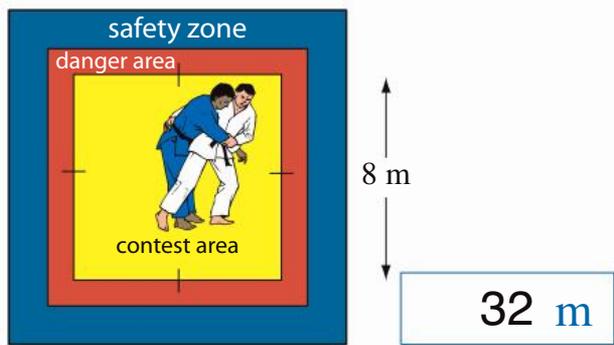
Number of days (x)	Number of pages read ($50x$)
2	$50 \times 2 = 100$
4	$50 \times 4 = 200$
6	$50 \times 6 = 300$
8	$50 \times 8 = 400$
10	$50 \times 10 = 500$
12	$50 \times 12 = 600$

24. [Units of Measurement / Time] *

3 L = mL

25. [Perimeter] *

What is the perimeter of the contest area on the judo mat?



26. [Area / Volume] *

Using $\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$, find the area of the triangle.



27. [Shapes]

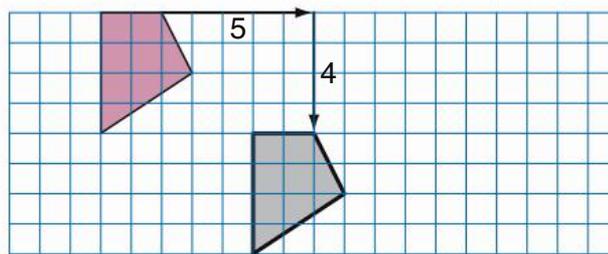
I am a quadrilateral with all my sides equal in length. None of my angles equals 90°. What am I?

- A) a parallelogram B) a rectangle
C) a rhombus D) a square

C

28. [Location / Transformation]

Translate this shape 5 units right and 4 units down.



29. [Statistics]

This table shows the atomic number of 7 chemical elements. Find the median of these atomic numbers.

Chemical Elements - atomic number

Helium (He)	Neon (Ne)	Sodium (Na)	Iron (Fe)	Copper (Cu)	Silver (Ag)	Uranium (U)
2	10	11	26	29	47	92

26

30. [Probability] *

A spinner is divided into 6 equal parts. When it is spun once, what is the probability of spinning a 4?

[Give your answer as a fraction.]



$\frac{1}{6}$

31. [Problem Solving 1] *

I think of a number, multiply it by 4, subtract 6 and then divide by 5. If the answer is 10, what is the original number?

14

32. [Problem Solving 2] *

How many numbers are equal to the sum of two odd, one-digit numbers?

9

33. [Problem Solving 3] *

Six is called a *perfect number* because its factors (not including 6) add up to itself, i.e. $1 + 2 + 3 = 6$.

Find all the perfect numbers between 20 and 30.

28



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Cheerfulness is contagious, but don't wait to catch it from others. Be a carrier!

1. [+ Whole Numbers to 10]

	17	13	9	16	8	14	22	15	20	11
+ 8	25	21	17	24	16	22	30	23	28	19

2. [- Whole Numbers to 10]

	18	9	10	14	25	13	27	22	11	26
- 7	11	2	3	7	18	6	20	15	4	19

3. [× Whole Numbers to 12]

	8	5	3	12	9	10	4	6	7	11
× 9	72	45	27	108	81	90	36	54	63	99

4. [+ Whole Numbers to 12]

	50	90	110	70	120	60	80	40	100	30
÷ 10	5	9	11	7	12	6	8	4	10	3

5. [Large Number +,-]

$$\begin{array}{r} 5164 \\ - 3357 \\ \hline \end{array}$$

1807

10. [Fraction ×,-]

$$\frac{1}{4} \times \frac{1}{6} =$$

$\frac{1}{24}$

17. [Exploring Numbers]

Round 1289 to the nearest hundred.

1300

6. [Large Number ×,+]

$$\begin{array}{r} 256 \\ \times 50 \\ \hline \end{array}$$

12800

11. [Percentages] *

30% of 250 =

75

18. [Multiples / Factors / Primes] *

List all the common factors of 36 and 48.

1, 2, 3, 4, 6, 12

7. [Decimal +,-]

$$\begin{array}{r} 27.51 \\ + 8.39 \\ \hline \end{array}$$

35.90

12. [Decimals / Fractions / Percentages] *

Write 0.8 as a percentage.

80%

19. [Number Patterns]

Complete the pattern:

224, 112, 56, 28, 14, 7

8. [Decimal ×,+]

$$\begin{array}{r} 8.06 \\ \times 7 \\ \hline \end{array}$$

56.42

13. [Integers] *

Tutankhamun's tomb was discovered in 1922. If he was buried in 1323 BC, for how long was he buried before discovery?

3245 years

20. [Expressions]

Write as an expression:

A number that is equal to twice as much as x

or $2 \times x$ $2x$

9. [Fraction +,-] *

$$\frac{4}{9} + \frac{2}{9} =$$

$\frac{2}{3}$

14. [Rates / Ratios]

Simplify the ratio

25 : 35 : 50

5 : 7 : 10

21. [Substitution] *

If $w = 6$ and $x = 0$, find the value of wx

0

15. [Indices / Square Roots]

$$\sqrt{81} =$$

9

22. [Equations]

$$\frac{1}{4} \text{ of } 60 = 15$$

23. [Coordinates]

Complete the table for this rule:

Number of minutes (x)	Phone bill in cents ($20x$)
0.5	$20 \times 0.5 = 10$
1.0	$20 \times 1.0 = 20$
1.5	$20 \times 1.5 = 30$
2.0	$20 \times 2.0 = 40$
2.5	$20 \times 2.5 = 50$
3.0	$20 \times 3.0 = 60$

24. [Units of Measurement / Time] *

15 L = **15 000** mL

25. [Perimeter] *

What is the perimeter of a rectangular five dollar note?

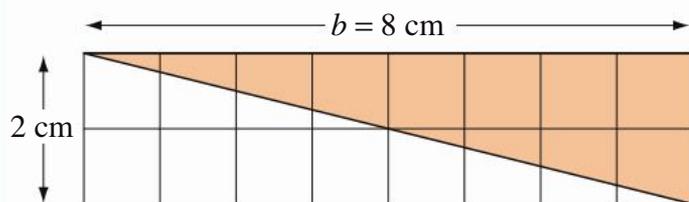


130 mm

390 mm

26. [Area / Volume] *

Using Area = $\frac{1}{2} \times \text{base} \times \text{height}$, find the area of the triangle.



8 cm²

27. [Shapes]

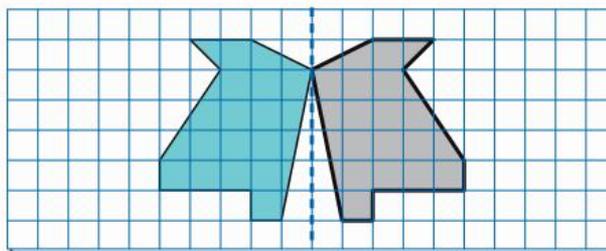
I am a quadrilateral with all my sides equal in length. My diagonals intersect at right angles, and are equal in length. What am I?

- A) a parallelogram B) a rhombus
C) a rectangle D) a square

D

28. [Location / Transformation]

Redraw this shape after reflecting it in the vertical dotted line.



29. [Statistics]

This table shows the number of stations on some of Europe's monorails. Find the mode and range of the data.

Europe's Monorails (Number of Stations)									
2	2	2	2	2	3	3	5	6	20

mode = 2 range = 18

30. [Probability] *

When this spinner is spun once, what is the probability of spinning a vowel?

[Give your answer as a fraction in simplest form.]



$\frac{1}{4}$

31. [Problem Solving 1] *

The sum of four consecutive whole numbers is 54. What are the four numbers?

12, 13, 14, 15

32. [Problem Solving 2] *

A bottle of wine costs \$10. The wine is worth \$9 more than the bottle. How much is the bottle worth?

or \$0.50 **50¢**

33. [Problem Solving 3] *

A baby wriggled so much that weighing him at the clinic was a problem. So the doctor held the baby and stood on a scale. Then the nurse held the baby and stood on the scale. Then the doctor held the nurse who held the baby and stood on the scale. The three results were 78 kg, 69 kg and 142 kg respectively. What was the weight of the baby?

5 kg



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
With persistence comes success.
Napoleon Hill

1. [+ Whole Numbers to 10]

	16	21	3	18	7	19	14	10	2	25
+ 4	20	25	7	22	11	23	18	14	6	29

2. [- Whole Numbers to 10]

	10	21	7	24	13	18	25	16	22	9
- 6	4	15	1	18	7	12	19	10	16	3

3. [× Whole Numbers to 12]

	1	9	5	6	2	3	7	10	8	4
× 11	11	99	55	66	22	33	77	110	88	44

4. [+ Whole Numbers to 12]

	72	36	90	108	45	63	27	54	99	81
÷ 9	8	4	10	12	5	7	3	6	11	9

5. [Large Number +,-]

$$\begin{array}{r} 2075 \\ - 1908 \\ \hline \end{array}$$

167

6. [Large Number ×,+]

$$\begin{array}{r} 147 \\ \times 200 \\ \hline \end{array}$$

29400

7. [Decimal +,-]

$$\begin{array}{r} 9.74 \\ + 26.8 \\ \hline \end{array}$$

36.54

8. [Decimal ×,+]

$$\begin{array}{r} 5.107 \\ \times 4 \\ \hline \end{array}$$

20.428

9. [Fraction +,-] *

$$\frac{5}{12} + \frac{4}{12} =$$

$\frac{3}{4}$

10. [Fraction ×,+]

$$\frac{1}{3} \times \frac{2}{5} =$$

$\frac{2}{15}$

11. [Percentages] *

$$40\% \text{ of } 70 =$$

28

12. [Decimals / Fractions / Percentages] *

A female lion does 90% of the hunting. Write this percentage as a decimal.

0.9

13. [Integers] *

In Antarctica the highest recorded temperature is 17°C and the lowest is -89°C. What is the temperature difference?

106°C

14. [Rates / Ratios]

Simplify the ratio

$$18 : 30 : 54$$

3 : 5 : 9

15. [Indices / Square Roots]

$$\sqrt{1} =$$

1

16. [Order of Operations] *

$$6 \times 3 - (9 - 5) =$$

14

17. [Exploring Numbers]

Round 843 to the nearest ten.

840

18. [Multiples / Factors / Primes] *

What is the highest common factor (HCF) of 24 and 45?

3

19. [Number Patterns]

Complete the pattern:

$$5000, 1000, 200, \underline{40}, \underline{8}$$

20. [Expressions]

Write as an expression:
The product of seven and d

$7d$

or $7 \times d$

21. [Substitution] *

If $n = -9$ and $m = 3$, find the value of $n - m$

-12

22. [Equations]

$$\frac{1}{6} \times \underline{24} = 4$$

23. [Coordinates]

Complete the table for this rule:

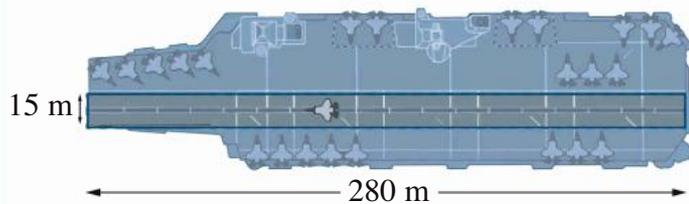
No of weeks (x)	Number of practice hours ($8x$)
1	$8 \times 1 = 8$
2	$8 \times 2 = 16$
3	$8 \times 3 = 24$
4	$8 \times 4 = 32$
5	$8 \times 5 = 40$
6	$8 \times 6 = 48$

24. [Units of Measurement / Time] *

7000 mL = L

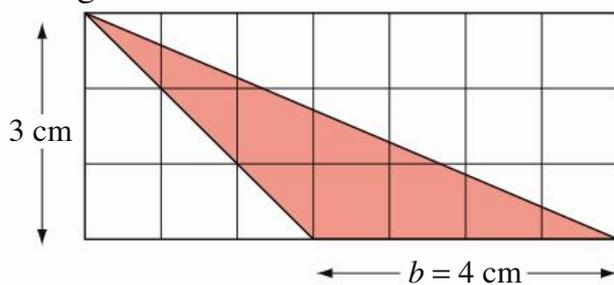
25. [Perimeter] *

What is the perimeter of the rectangular narrow runway on the aircraft carrier HMS Queen Elizabeth?



26. [Area / Volume] *

Using $A = \frac{1}{2}bh$ find the area of the triangle.



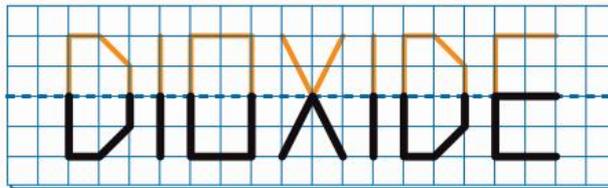
27. [Shapes]

I am a 2-dimensional shape with two sides perpendicular. I have an angle sum of 180 degrees. What am I?

- A) a square
- B) a right-angled triangle
- C) an isosceles triangle
- D) an equilateral triangle

28. [Location / Transformation]

Redraw this diagram after reflecting it in the horizontal dotted line.



29. [Statistics] *

Agnes selects scrabble letters that spell the 7 letter word 'phantom'. Find the mean (average) value of her tiles.

Value of Scrabble tile selection

A	N	O	T	M	P	H
1	1	1	1	3	3	4

30. [Probability] *

When a die is rolled, what is the probability of rolling a number smaller than 6? [Give your answer as a fraction.]

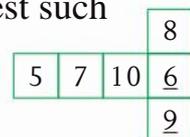


31. [Problem Solving 1] *

Bernard counted 8 posts along the side of the road. If the posts were 20 metres apart, how far is it from the first post to the last? [Hint: Draw a diagram.]

32. [Problem Solving 2] *

This net can be folded to form a cube. The numbers on the three faces meeting at any vertex can be multiplied together. What is the smallest such product for the vertices of this cube?



33. [Problem Solving 3] *

5, 6, 8

In my block of 100 flats, a painter is kept employed by painting one flat each month from January to November. The flats are painted in the same order and he takes a holiday every December. If my flat was last painted in August 2020, when will it be next painted?



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Nothing ventured, nothing gained.
William Shakespeare

1. [+ Whole Numbers to 10]

	11	8	17	13	2	16	20	9	15	14
+ 9	20	17	26	22	11	25	29	18	24	23

2. [- Whole Numbers to 10]

	17	4	15	21	18	9	16	7	12	10
- 3	14	1	12	18	15	6	13	4	9	7

3. [× Whole Numbers to 12]

	7	6	1	8	2	3	10	9	4	5
× 6	42	36	6	48	12	18	60	54	24	30

4. [+ Whole Numbers to 12]

	48	24	56	80	32	40	72	64	96	88
÷ 8	6	3	7	10	4	5	9	8	12	11

5. [Large Number +,-]

$$\begin{array}{r} 9058 \\ - 4273 \\ \hline 4785 \end{array}$$

10. [Fraction ×,+]

$$\frac{2}{5} \times \frac{3}{7} = \frac{6}{35}$$

16. [Order of Operations] *

$$1 + (8 - 3) \times 2 = 11$$

11. [Percentages] *

$$15\% \text{ of } 80 = 12$$

17. [Exploring Numbers]

Round 32550 to the nearest thousand.

$$33000$$

6. [Large Number ×,+]

$$\begin{array}{r} 2136 \\ \times 400 \\ \hline 854400 \end{array}$$

12. [Decimals / Fractions / Percentages] *

The adult human brain represents 2% of total body weight. Write this percentage as a decimal.

$$0.02$$

18. [Multiples / Factors / Primes] *

What is the highest common factor (HCF) of 27 and 36?

$$9$$

7. [Decimal +,-]

$$\begin{array}{r} 78.4 \\ + 60.96 \\ \hline 139.36 \end{array}$$

13. [Integers] *

The entrance to the Great Pyramid (Egypt) is 17 m above ground. What is the vertical distance from the entrance to the base of the pyramid which is 31 m underground?

$$48 \text{ m}$$

19. [Number Patterns]

Complete the pattern:

243, 81, 27, 9, 3, $1, \frac{1}{3}$

8. [Decimal ×,+]

$$\begin{array}{r} 2.035 \\ \times 6 \\ \hline 12.210 \end{array}$$

14. [Rates / Ratios]

Simplify the ratio

$$40 : 16 : 80 = 5 : 2 : 10$$

20. [Expressions]

Write as an expression:

A number that is equal to five less than b

$$b - 5$$

9. [Fraction +,-] *

$$\frac{9}{10} - \frac{3}{10} = \frac{3}{5}$$

15. [Indices / Square Roots]

$$\sqrt{121} = 11$$

21. [Substitution] *

If $s = 21$ and $t = -7$, find the value of $s \div t$

$$-3$$

22. [Equations]

$$\frac{1}{10} \times 70 = 7$$

23. [Coordinates]

Complete the table for this rule:

Dollars earned (x)	Dollars saved ($x \div 4$)
20	$20 \div 4 = 5$
40	$40 \div 4 = 10$
60	$60 \div 4 = 15$
80	$80 \div 4 = 20$
100	$100 \div 4 = 25$
120	$120 \div 4 = 30$

24. [Units of Measurement / Time] *

800 mL = 0.8 L

25. [Perimeter] *

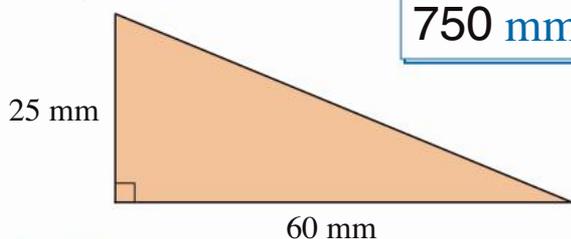
What is the perimeter of the Pentagon (Arlington, Virginia, USA), the world's largest office building by floor area?



1400 m

26. [Area / Volume] *

Using $A = \frac{1}{2}bh$ find the area of the triangle.



750 mm²

27. [Shapes]

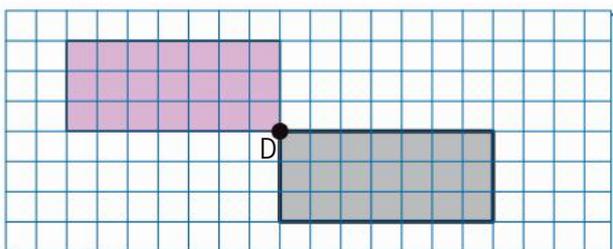
I am a 2-dimensional shape with all my sides of equal length. I have an angle sum of 180 degrees. What am I?

- A) a square
- B) a right-angled triangle
- C) an isosceles triangle
- D) an equilateral triangle

D

28. [Location / Transformation]

Redraw this rectangle after rotating it 180° about the point D.



29. [Statistics] *

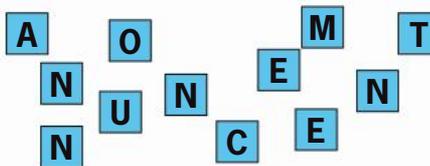
This table shows a 5-day temperature forecast for Auckland. Find the mean (average) of the low temperatures.

Auckland 5-day Forecast					
	MON	TUE	WED	THUR	FRI
High	17°C	17°C	18°C	17°C	16°C
Low	10°C	11°C	11°C	10°C	8°C
Jun 28 2020					

10°C

30. [Probability] *

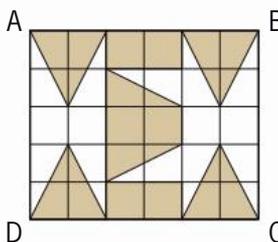
If a letter tile is chosen at random, find the probability of choosing the letter N. [Give your answer as a fraction in simplest form.]



1/3

31. [Problem Solving 1] *

What fraction of the rectangle ABCD is shaded? [Give your answer as a fraction in simplest form.]



8/15

32. [Problem Solving 2] *

A sports store buys new tennis racquets for \$200 each from the manufacturer, and marks up the price by 60%. A racquet was sold during a 25% off sale. How much profit did the shop make on that racquet?

\$ 40

33. [Problem Solving 3] *

Deduce the 3-digit secret number.

[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	7 5 1	1	1
2nd	5 7 4	1	1
3rd	3 1 7	1	1

714



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Things generally work out best for those who make the best of the way things work out.

1. [+ Whole Numbers to 10]

	10	21	14	16	19	22	5	17	18	23
+ 3	13	24	17	19	22	25	8	20	21	26

2. [- Whole Numbers to 10]

	21	13	29	6	24	17	25	18	12	30
- 4	17	9	25	2	20	13	21	14	8	26

3. [× Whole Numbers to 12]

	4	2	3	6	9	1	10	8	7	5
× 8	32	16	24	48	72	8	80	64	56	40

4. [+ Whole Numbers to 12]

	84	132	108	60	144	120	72	36	48	96
÷ 12	7	11	9	5	12	10	6	3	4	8

5. [Large Number +,-]

$$\begin{array}{r} 4\ 5\ 6\ 8 \\ +\ 1\ 7\ 4\ 0 \\ \hline \end{array}$$

6308

6. [Large Number ×,+]

$$\begin{array}{r} 3\ 7 \\ \times\ 5\ 2 \\ \hline 7\ 4 \\ \hline \end{array}$$

1850

1924

7. [Decimal +,-]

$$\begin{array}{r} 4\ 2.0\ 3 \\ -\ 0.0\ 8 \\ \hline \end{array}$$

41.95

8. [Decimal ×,+]

$$\begin{array}{r} 8.3 \\ 5 \overline{) 41.5} \end{array}$$

9. [Fraction +,-] *

$$2\frac{4}{5} + 2\frac{3}{5} = \mathbf{5\frac{2}{5}}$$

10. [Fraction ×,+] *

$$\frac{3}{4} \div 3 =$$

$\frac{1}{4}$

11. [Percentages] *

In a store a \$40 dress is marked '25% off'. What is the discount on the dress?

\$ 10

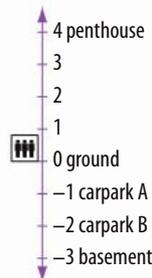
12. [Decimals / Fractions / Percentages]

Three quarters of Canadians live within a short distance of the USA border. Write this fraction as a decimal.

0.75

13. [Integers]

Starting on the ground floor Ella went up 4 floors and down 7. At which level does Ella finish?



basement

14. [Rates / Ratios] *

6 : 11 is equivalent to 10 : 22
True or false?

false

15. [Indices / Square Roots]

$$20^2 =$$

400

16. [Order of Operations] *

$$30 \div (5 + 10) \times 5 =$$

10

17. [Exploring Numbers]

Place in ascending order:
0.68, 0.08, 0.86, 0.806

0.08, 0.68, 0.806, 0.86

18. [Multiples / Factors / Primes]

List all the prime numbers between 1 and 10.

2, 3, 5, 7

19. [Number Patterns]

Complete the pattern:

1, 2, 4, 7, 11, **16, 22**

20. [Expressions]

Choose the like terms:

3x, y, 2x

3x, 2x

21. [Substitution] *

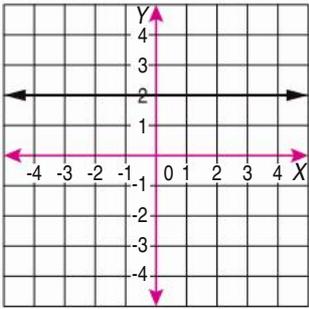
If $g = 9$ and $h = 2$, find the value of $g - h - 4$

3

22. [Equations]

$$\frac{1}{8} \text{ of } \mathbf{32} = 4$$

23. [Coordinates]



The line above shows:

- A) All points where $x = 2$
- B) All points where $y = 2$
- C) All points where $y = x + 2$

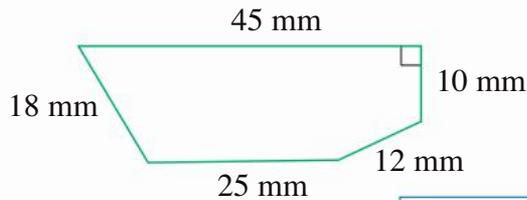
B

24. [Units of Measurement / Time] *

5 weeks = 35 days

25. [Perimeter] *

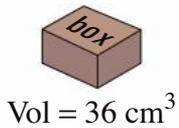
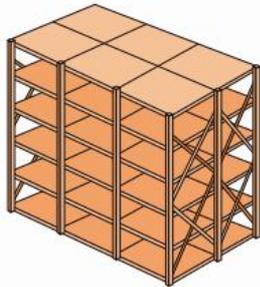
Calculate the perimeter of the polygon.



110 mm

26. [Area / Volume] *

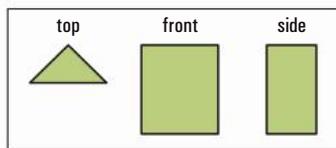
If 30 boxes can fit inside these shelves, find the total volume of the boxes.



1080 cm³

27. [Shapes]

Which solid has these top, front and side views?

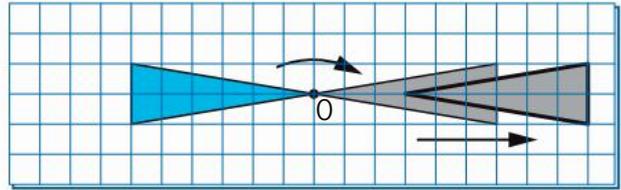


- A)
- B)
- C)

B

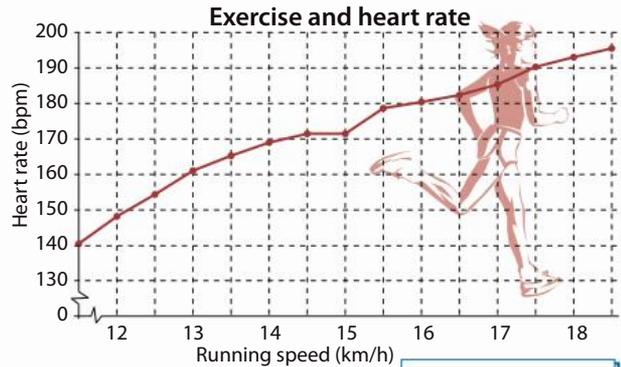
28. [Location / Transformation]

Redraw this triangle after rotating it 180° about the point O and then translating it 3 units to the right.



29. [Statistics]

If Di's heart rate is 180 beats per minute, what is her running speed likely to be?



16 km/h

30. [Probability] *

A bag contains 6 white, 2 black and 10 green marbles. If a marble is chosen at random, find the probability that it is a white marble.

[Give your answer as a fraction in simplest form.]

$\frac{1}{3}$

31. [Problem Solving 1] *

A dealer bought an article for \$7, sold it for \$8, bought it back for \$9, and then sold it for \$10. How much profit did he make?

\$2

32. [Problem Solving 2] *

A square piece of paper is folded in half. The perimeter of the resulting rectangle is 24 cm. Find the area of the original square paper.

64 cm²

33. [Problem Solving 3]

Use each number between 1 and 9 once to complete the equations in this square.

[In each row and column the order of operations must be followed.]

9	÷	3	-	1	2
+		+		×	
7	+	6	-	4	9
×		+		÷	
5	×	8	÷	2	20
44		17		2	



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Tell me and I'll forget; show me and I may remember;
involve me and I'll understand.
Chinese Proverb

1. [+ Whole Numbers to 10]

	23	15	18	21	7	16	19	14	22	20
+ 7	30	22	25	28	14	23	26	21	29	27

2. [- Whole Numbers to 10]

	6	27	19	23	21	10	28	15	24	12
- 5	1	22	14	18	16	5	23	10	19	7

3. [× Whole Numbers to 12]

	4	6	7	12	9	3	11	8	5	10
× 3	12	18	21	36	27	9	33	24	15	30

4. [+ Whole Numbers to 12]

	6	18	14	8	20	12	22	24	16	10
÷ 2	3	9	7	4	10	6	11	12	8	5

5. [Large Number +,-]

$$\begin{array}{r} 8561 \\ + 7254 \\ \hline \end{array}$$

15815

6. [Large Number ×,+]

$$\begin{array}{r} 105 \\ \times 46 \\ \hline \end{array}$$

$$\begin{array}{r} 630 \\ 4200 \\ \hline \end{array}$$

4830

7. [Decimal +,-]

$$\begin{array}{r} 64.15 \\ - 6.37 \\ \hline \end{array}$$

57.78

8. [Decimal ×,+]

$$\begin{array}{r} 5.7 \\ 3 \overline{) 17.1} \end{array}$$

5.7

9. [Fraction +,-] *

$$1\frac{5}{6} + \frac{1}{6} =$$

2

10. [Fraction ×,+] *

$$\frac{1}{6} \div 5 =$$

$\frac{1}{30}$

11. [Percentages] *

In a store a \$15 book is marked '10% off'. What is the discount on the book?

\$1.50

12. [Decimals / Fractions / Percentages]

Write 0.7 as a fraction.

$\frac{7}{10}$

13. [Integers]

A nurse from the oncology ward goes down 4 levels and then up 6. Where does she finish?



surgical

14. [Rates / Ratios] *

Which ratio is equivalent to 7 : 8?

- A) 28 : 40
- B) 21 : 24
- C) 49 : 64

B

15. [Indices / Square Roots]

$$40^2 =$$

1600

16. [Order of Operations] *

$$7 + 3 \times (4 + 6) =$$

37

17. [Exploring Numbers]

Place in descending order: 0.035, 0.53, 0.05, 0.305

0.53, 0.305, 0.05, 0.035

18. [Multiples / Factors / Primes]

What is the prime number just before 97?

89

19. [Number Patterns]

Complete the pattern:

6, 7, 12, 13, 18, **19, 24**

20. [Expressions]

Choose the like terms:

3h, i, 4i

i, 4i

21. [Substitution] *

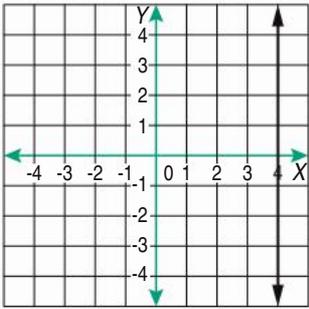
If $p = 3$ and $q = 10$, find the value of $17 + p - q$

10

22. [Equations] *

$$\frac{3}{5} \text{ of } \mathbf{40} = 24$$

23. [Coordinates]



The line above shows:

- A) All points where $y = x + 4$
- B) All points where $y = 4$
- C) All points where $x = 4$

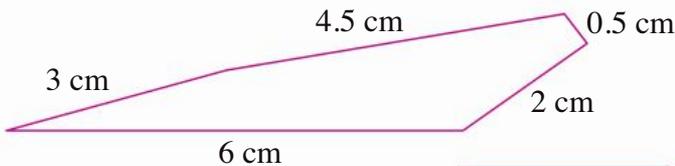
C

24. [Units of Measurement / Time] *

3 years = 36 months

25. [Perimeter] *

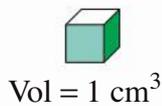
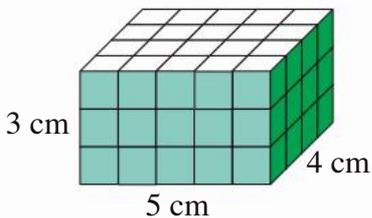
Calculate the perimeter of the polygon.



16 cm

26. [Area / Volume] *

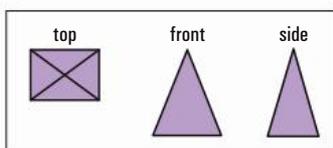
Using Volume = length \times width \times height, find the volume of the rectangular prism.



60 cm³

27. [Shapes]

Which solid has these top, front and side views?

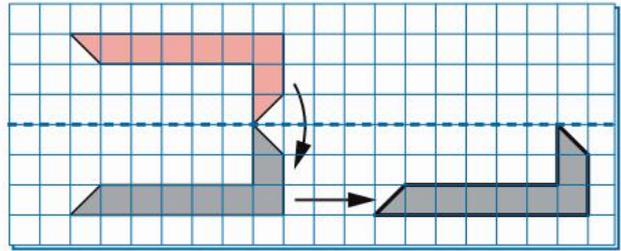


- A)
- B)
- C)

A

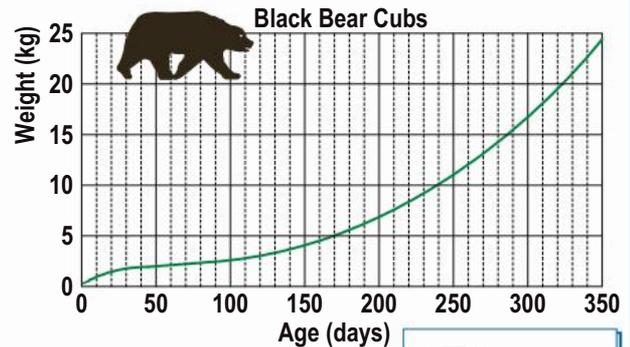
28. [Location / Transformation]

Redraw this shape after reflecting it in the horizontal dotted line and then translating it 10 units to the right.



29. [Statistics]

When a black bear cub reaches 5 kg in weight, how old should it be?



170 days

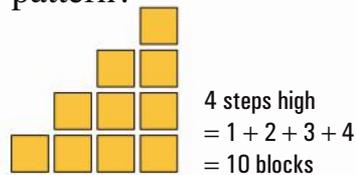
30. [Probability] *

Ten balls numbered 1 to 10 are mixed together, and then one ball is drawn. Find the probability that an odd number is drawn. [Give your answer as a fraction in simplest form.]

$\frac{1}{2}$

31. [Problem Solving 1] *

How many blocks are needed to build a staircase 10 steps high, following this pattern?



55

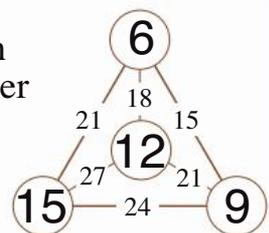
32. [Problem Solving 2] *

If 64 players are on the start list for a Women's Singles Tennis Championship, how many matches are played to decide a winner? [Players are directly eliminated after each match.]

63

33. [Problem Solving 3] *

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Great eaters and great sleepers are incapable of anything else that is great.
Henry IV of France

1. [+ Whole Numbers to 10]

	17	13	8	19	12	5	16	20	11	14
+ 10	27	23	18	29	22	15	26	30	21	24

2. [- Whole Numbers to 10]

	14	26	9	23	21	17	25	12	30	28
- 8	6	18	1	15	13	9	17	4	22	20

3. [× Whole Numbers to 12]

	11	8	10	4	7	2	5	6	9	3
× 4	44	32	40	16	28	8	20	24	36	12

4. [+ Whole Numbers to 12]

	30	54	18	36	48	42	72	24	60	66
÷ 6	5	9	3	6	8	7	12	4	10	11

5. [Large Number +, -]

$$\begin{array}{r} 4358 \\ + 1342 \\ \hline \end{array}$$

5700

6. [Large Number ×, ÷]

$$\begin{array}{r} 183 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 1281 \\ 3660 \\ \hline \end{array}$$

4941

7. [Decimal +, -]

$$\begin{array}{r} 90.06 \\ - 0.09 \\ \hline \end{array}$$

89.97

8. [Decimal ×, ÷]

$$6 \overline{) 19.2}$$

3.2

9. [Fraction +, -] *

$$1\frac{6}{7} + 2\frac{2}{7} = 4\frac{1}{7}$$

10. [Fraction ×, ÷] *

$$\frac{4}{5} \div 2 =$$

$\frac{2}{5}$

11. [Percentages] *

In a store a \$500 scooter is marked '20% off'. What is the sale price of the scooter?

\$400

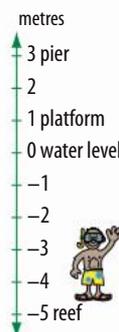
12. [Decimals / Fractions / Percentages]

Write 0.53 as a fraction.

$\frac{53}{100}$

13. [Integers]

A snorkeler is at 4 m below water level. He swims up 3 m and down 4 m. Where is the snorkeler now?



reef

14. [Rates / Ratios] *

Complete the equivalent ratios:

$$12 : 20 = 3 : 5$$

15. [Indices / Square Roots]

$$90^2 =$$

8100

16. [Order of Operations] *

$$8 + (12 - 5) \times 3 =$$

29

17. [Exploring Numbers] *

Which fraction has greater value?

$$\frac{5}{6} \text{ or } \frac{2}{3}$$

$\frac{5}{6}$

18. [Multiples / Factors / Primes]

List all the prime numbers between 20 and 40.

23, 29, 31, 37

19. [Number Patterns]

Complete the pattern:

$$20, 20, 19, 17, 14, \underline{10}, \underline{5}$$

20. [Expressions]

Choose the like terms:

$$2l, 2, l$$

2l, l

21. [Substitution] *

If $t = -3$ and $u = 8$, find the value of $2t - u$

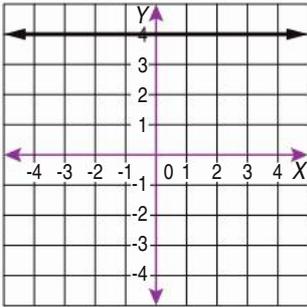
-14

22. [Equations] *

$$\frac{3}{4} \times 16 = 12$$

23. [Coordinates]

Draw a line connecting all the points which have a y-coordinate of 4.

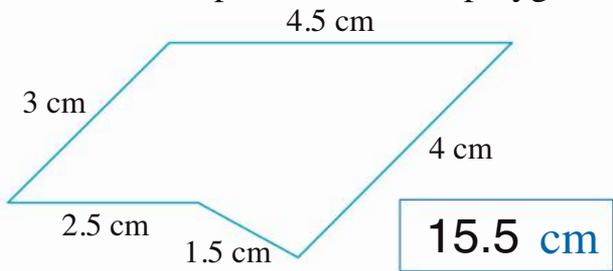


24. [Units of Measurement / Time] *

240 s = min

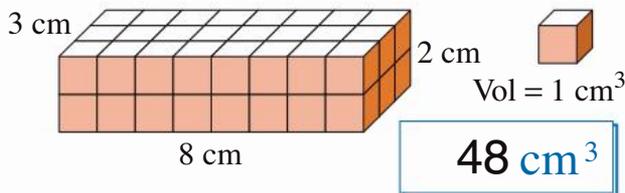
25. [Perimeter] *

Calculate the perimeter of the polygon.



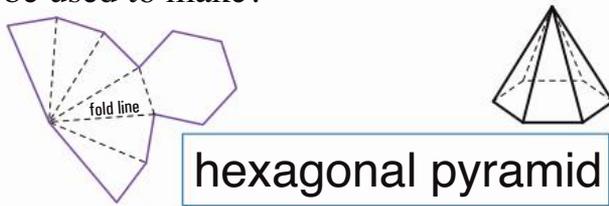
26. [Area / Volume] *

Using Volume = length × width × height, find the volume of the rectangular prism.



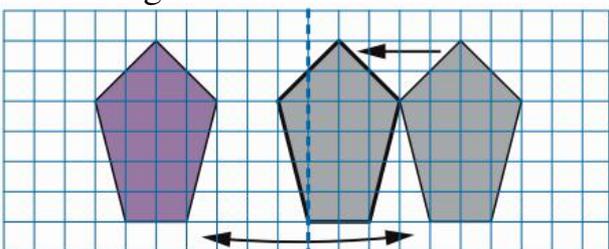
27. [Shapes]

What 3-dimensional shape can this net be used to make?



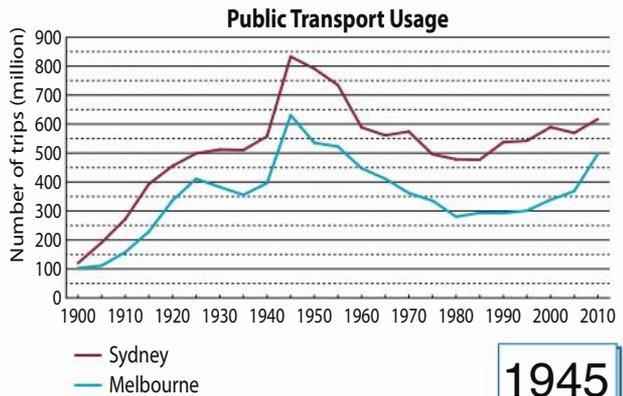
28. [Location / Transformation]

Redraw this shape after reflecting it in the vertical dotted line and then translating it 4 units to the left.



29. [Statistics]

In which year did public transport usage peak in both Sydney and Melbourne?



30. [Probability] *

A box contains 60 blue, 20 green and 20 red raffle tickets. If one ticket is picked at random, what is the probability that it is a red ticket? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1]

The net shown is folded to form a cube with A on the base. Which of the letters on the four vertical sides will not be the right way up?



32. [Problem Solving 2] *

How many numbers greater than 600 can be formed with the digits 5, 6, 7 and 8 if no digit is used more than once in a number?

33. [Problem Solving 3] *

Vera, Eve and Jessie volunteered for 3 different charities working as a cleaner, an accountant and a courier. Vera ended up working for *Make-A-Wish*. Eve was not working for *Meals on Wheels*. *Red Cross* would not even employ a courier, and *Meals on Wheels* is still advertising for an accountant and a courier. Where is Eve working, and what is her job?



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Those who can - do. Those who can't - criticise.

1. [+ Whole Numbers to 10]

	14	21	15	9	13	2	17	6	10	18
+ 8	22	29	23	17	21	10	25	14	18	26

2. [- Whole Numbers to 10]

	9	17	28	15	26	13	21	30	24	22
- 9	0	8	19	6	17	4	12	21	15	13

3. [× Whole Numbers to 12]

	3	10	6	4	7	8	12	5	9	11
× 5	15	50	30	20	35	40	60	25	45	55

4. [+ Whole Numbers to 12]

	22	66	55	88	121	110	77	99	33	44
÷ 11	2	6	5	8	11	10	7	9	3	4

5. [Large Number +,-]

$$\begin{array}{r} 6493 \\ + 7451 \\ \hline \end{array}$$

13944

6. [Large Number ×,+]

$$\begin{array}{r} 694 \\ \times 23 \\ \hline 2082 \\ 13880 \\ \hline \end{array}$$

15962

7. [Decimal +,-]

$$\begin{array}{r} 85.36 \\ - 25.6 \\ \hline \end{array}$$

59.76

8. [Decimal ×,+]

$$\begin{array}{r} 2.6 \\ 8 \overline{) 20.8} \\ \hline \end{array}$$

9. [Fraction +,-] *

$$4\frac{4}{9} + 2\frac{8}{9} = \mathbf{7\frac{1}{3}}$$

10. [Fraction ×,+] *

$$\frac{6}{7} \div 3 =$$

$\frac{2}{7}$

11. [Percentages] *

In a store a \$75 game is marked '50% off'. What is the sale price of the game?

\$37.50

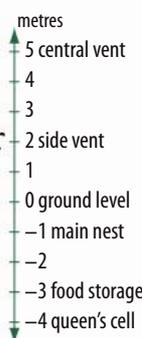
12. [Decimals / Fractions / Percentages]

One carat is equivalent to one fifth of a gram. Write this fraction as a decimal.

0.2

13. [Integers]

A termite entered its tower via the side vent, got food from the storage and then went to the main nest. How far did the termite travel?



7 m

14. [Rates / Ratios] *

Complete the equivalent ratios:

$$5 : 12 = \mathbf{25} : 60$$

15. [Indices / Square Roots]

$$30^2 =$$

900

16. [Order of Operations] *

$$14 - (18 - 8) \div 2 =$$

9

17. [Exploring Numbers] *

Which fraction has greater value?

$$\frac{2}{5} \text{ or } \frac{1}{2}$$

$\frac{1}{2}$

18. [Multiples / Factors / Primes]

Choose the composite numbers:

42, 43, 44, 45, 46, 47, 48

42, 44, 45, 46, 48

19. [Number Patterns]

Complete the pattern:

$$60, 58, 54, 48, 40, \mathbf{30}, \mathbf{18}$$

20. [Expressions]

Choose the like terms:

$$4e, e, 4f$$

4e, e

21. [Substitution] *

If $y = 1$ and $z = 4$, find the value of $2yz + 8$

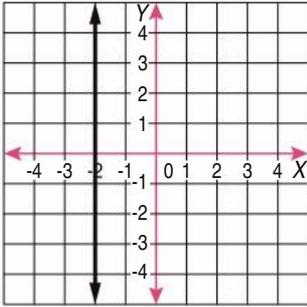
16

22. [Equations] *

$$\frac{5}{6} \times \mathbf{30} = 25$$

23. [Coordinates]

Draw a line connecting all the points which have an x -coordinate of -2 .

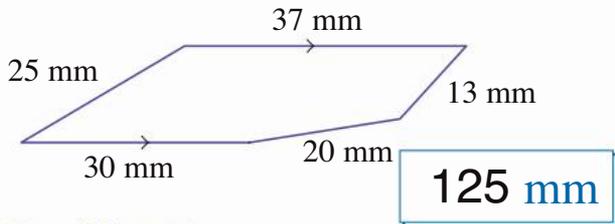


24. [Units of Measurement / Time] *

150 min = 2.5 h

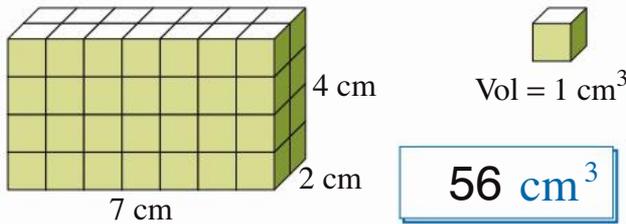
25. [Perimeter] *

Calculate the perimeter of the polygon.



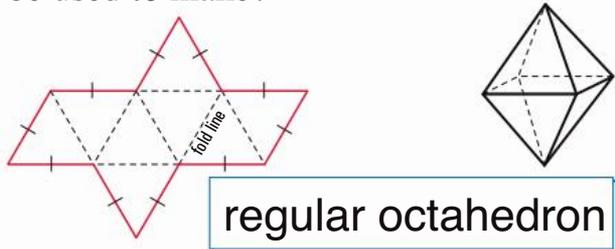
26. [Area / Volume] *

Using $V = lwh$ find the volume of the rectangular prism.



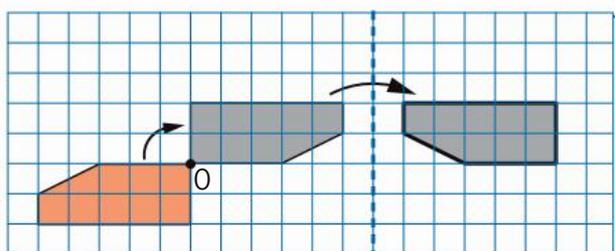
27. [Shapes]

What 3-dimensional shape can this net be used to make?



28. [Location / Transformation]

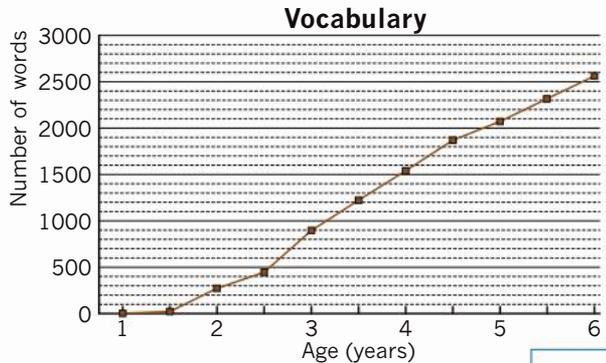
Redraw this shape after rotating it 180° about point O and then reflecting it in the vertical dotted line.



29. [Statistics]

Today is Seb's 3rd birthday. How many new words will he learn to use in the next year?

- A) 400 to 599 words
- B) 600 to 799 words
- C) 800 to 999 words



B

30. [Probability]

A money bag contains ten 5-dollar notes and thirty 10-dollar notes. If a note is randomly selected from the bag, what is the probability of a 5-dollar note being selected? [Give your answer as a fraction in simplest form.]

$\frac{1}{4}$

31. [Problem Solving 1] *

Grandpa wants to make a rectangular chicken run. If he bought 12 metres of fencing wire, what is the largest area that he can make?

9 m²

32. [Problem Solving 2] *

In a maths class of 26 students, each girl drew a triangle and each boy drew a rectangle. If there were 92 sides drawn by the students, how many girls were in the class?

12

33. [Problem Solving 3] *

In this code puzzle, each letter has a different numerical value. The totals for each word are reached by adding together individual values. What is the total value of the word ENTREE?

T	E	A	=	30	
N	E	A	T	=	50
T	A	N	=	40	
T	E	N	=	35	
T	E	A	R	=	55

80



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

The secret of life is not to do what you like, but to like what you do.
American Proverb

1. [+ Whole Numbers to 10]

	24	15	53	6	18	39	22	10	37	41
+ 5	29	20	58	11	23	44	27	15	42	46

2. [- Whole Numbers to 10]

	22	35	14	18	29	7	10	21	6	33
- 2	20	33	12	16	27	5	8	19	4	31

3. [× Whole Numbers to 12]

	7	11	3	9	5	8	4	12	10	6
× 10	70	110	30	90	50	80	40	120	100	60

4. [÷ Whole Numbers to 12]

	24	9	6	27	21	12	18	30	15	33
÷ 3	8	3	2	9	7	4	6	10	5	11

5. [Large Number +, -]

$$\begin{array}{r} 83026 \\ - 7509 \\ \hline \end{array}$$

75517

10. [Fraction ×, ÷] *

$$\frac{1}{3} \times \frac{3}{4} =$$

$\frac{1}{4}$

17. [Exploring Numbers]

Round 12.48 to the nearest whole number.

12

6. [Large Number ×, ÷]

$$\frac{7600}{40} =$$

190

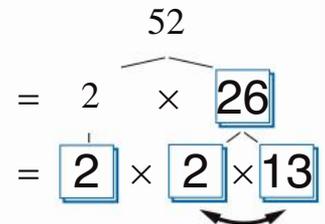
11. [Percentages] *

1% of 200 =

2

18. [Multiples / Factors / Primes]

Express 52 as a product of prime numbers by completing the factor tree.



7. [Decimal +, -]

$$\begin{array}{r} 73.04 \\ 2.9 \\ + 68.5 \\ \hline \end{array}$$

144.44

13. [Integers]

Lu owed \$200. He deposits \$800. How much does Lu have now?

\$600

19. [Number Patterns]

Complete the pattern:

2, 5, 11, 20, 32, **47, 65**

8. [Decimal ×, ÷] *

$$19.4 \div 10 =$$

1.94

14. [Rates / Ratios] *

Which is cheaper per DVD?

- A) \$20 for 25 DVDs
- B) \$30 for 40 DVDs

B

20. [Expressions]

Simplify $a + a + b$

$2a + b$

9. [Fraction +, -] *

$$\frac{2}{5} - \frac{3}{10} =$$

$\frac{1}{10}$

15. [Indices / Square Roots]

$$\sqrt{1600} =$$

40

21. [Substitution] *

Use $d = vt$ to find the distance (d) where $v = 6$ and $t = 9$

54

16. [Order of Operations] *

$$(16 - 8) \div (2 + 2) =$$

2

22. [Equations] *

$$3 + 6 \times \quad \quad = 15$$

2

23. [Coordinates]

The graph shows the distance from home at any time during Na's walk. How far had Na walked after 10 minutes?

600 m



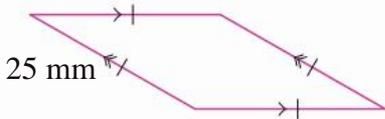
24. [Units of Measurement / Time] *

The shortest river in the world is Oregon's D River near Lincoln City (USA). It is 37 m long. Express this in centimetres.

3700 cm

25. [Perimeter] *

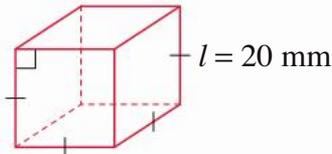
Express all measurements in centimetres and then find the perimeter of the rhombus.



10 cm

26. [Area / Volume] *

Using $V = l^3$ find the volume of the cube.



8000 mm³

27. [Shapes]

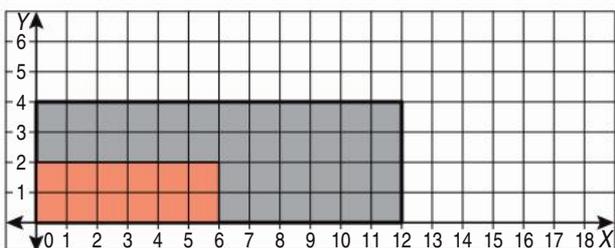
Find the value of x° .



36°

28. [Location / Transformation]

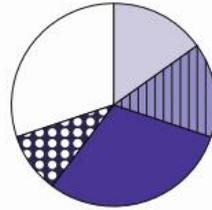
Redraw the rectangle after doubling the coordinates of its vertices.



29. [Statistics]

Since 1600, which continent has recorded about the same proportion of extinct mammals as North America?

Extinction of mammals (1600 - present day)



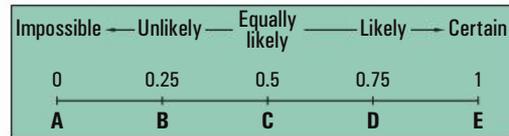
- North America
- Europe
- Australia
- Asia
- Africa

Australia

30. [Probability] *

'A yellow marble will be drawn from a bag containing 2 black marbles and 6 yellow marbles.'

Which letter A to E best represents the probability of the event?



D

31. [Problem Solving 1]

Complete the multiplication table.

×	3	5	2	6
9	27	45	18	54
2	6	10	4	12
4	12	20	8	24
7	21	35	14	42

32. [Problem Solving 2] *

How many triangles are there in this diagram?



10 + 10 + 10 + 5 = 35
 1 piece triangles 2 piece triangles 3 piece triangles 5 piece triangles

35

33. [Problem Solving 3]

Use the digits 1, 3, 5 and 7 once each, to make two 2-digit numbers.

What is the smallest possible product these two numbers can produce?

$$\begin{array}{r} 15 \\ \times 37 \\ \hline 105 \\ 450 \\ \hline 555 \end{array}$$



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

When working towards the solution of a problem, it always helps if you know the answer.
Rossiter

1. [+ Whole Numbers to 10]

	45	32	14	18	9	26	37	13	20	11
+ 3	48	35	17	21	12	29	40	16	23	14

2. [- Whole Numbers to 10]

	8	19	42	35	14	27	31	40	16	33
- 6	2	13	36	29	8	21	25	34	10	27

3. [× Whole Numbers to 12]

	10	5	1	8	3	7	2	9	4	6
× 7	70	35	7	56	21	49	14	63	28	42

4. [+ Whole Numbers to 12]

	90	27	63	45	72	36	81	18	54	9
÷ 9	10	3	7	5	8	4	9	2	6	1

5. [Large Number +,-]

$$\begin{array}{r} 59000 \\ - 2007 \\ \hline \end{array}$$

56993

6. [Large Number ×,+]

$$\frac{54000}{200} =$$

270

7. [Decimal +,-]

$$\begin{array}{r} 43.8 \\ 6.57 \\ + 20.59 \\ \hline \end{array}$$

70.96

8. [Decimal ×,+]

$$5.73 \div 10 =$$

0.573

9. [Fraction +,-]

$$\frac{1}{8} + \frac{3}{4} =$$

$\frac{7}{8}$

10. [Fraction ×,+]

$$\frac{1}{4} \times \frac{4}{5} =$$

$\frac{1}{5}$

11. [Percentages]

$$33\frac{1}{3}\% \text{ of } 90 =$$

30

12. [Decimals / Fractions / Percentages]

$$\text{Change } \frac{16}{50} \text{ to a percentage.}$$

32%

13. [Integers]

An echidna weighs 4700 g. During hibernation it loses 350 g. During spring it gains 500 g. What does the echidna weigh now?

4850 g

14. [Rates / Ratios]

Which is cheaper per call?

- A) \$6 for 15 calls
- B) \$5 for 10 calls

A

15. [Indices / Square Roots]

$$\sqrt{3600} =$$

60

16. [Order of Operations]

$$50 - (2 + 3 \times 2) =$$

42

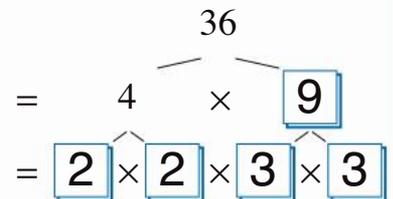
17. [Exploring Numbers]

Round 14.13 to the nearest whole number.

14

18. [Multiples / Factors / Primes]

Express 36 as a product of prime numbers by completing the factor tree.



19. [Number Patterns]

Complete the pattern:

20, 18, 15, 13, 10, **8, 5**

20. [Expressions]

Simplify $s + t + s$

$2s + t$

21. [Substitution]

Use $A = bh$ to find the area (A) of a parallelogram where $b = 8$ and $h = 7$

56

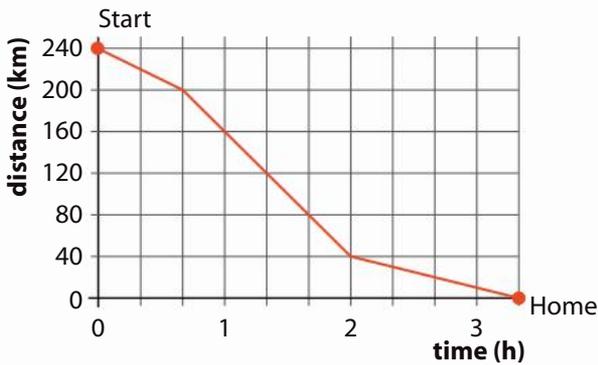
22. [Equations]

$$4 + 8 \times \text{ } = 28$$

3

23. [Coordinates]

A family drives home after a holiday. How long did they take to travel halfway?



1 h 20 min

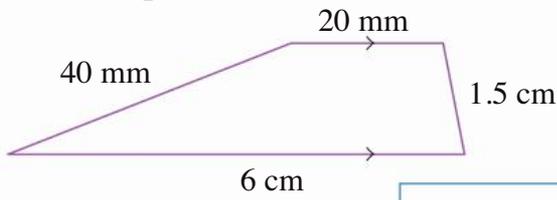
24. [Units of Measurement / Time] *

An average person eats 50 000 kg of food in a lifetime. Express this in tonnes (t).

50 t

25. [Perimeter] *

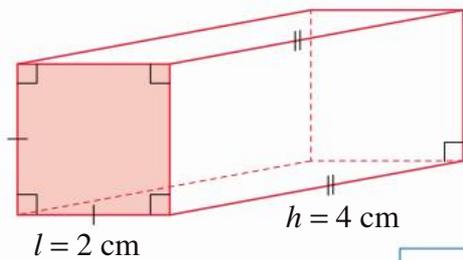
Express all measurements in centimetres and then find the perimeter of the trapezium.



13.5 cm

26. [Area / Volume] *

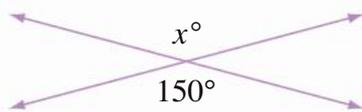
Using $V = l^2h$ find the volume of the square prism.



16 cm³

27. [Shapes]

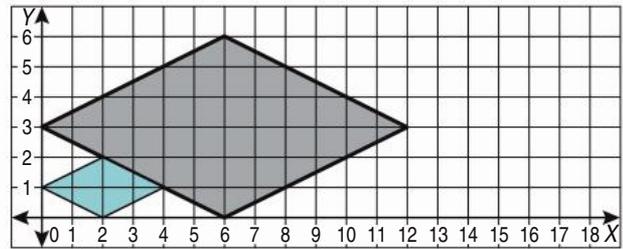
Find the value of x° .



150°

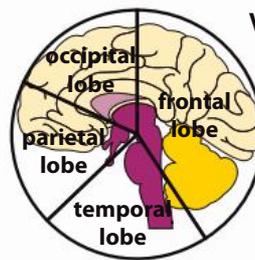
28. [Location / Transformation]

Redraw the rhombus after multiplying the coordinates of its vertices by 3.



29. [Statistics]

Which lobe of the brain is closest to twice the volume of the parietal lobe?



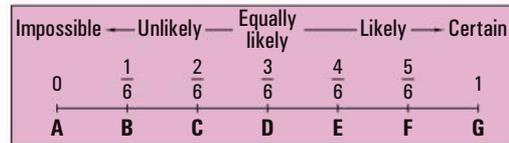
Volume of Cerebral Cortex (brain) by lobes

frontal lobe

30. [Probability] *

'A standard die is rolled and an even number comes up.'

Which letter A to G best represents the probability of the event?



D

31. [Problem Solving 1] *

In a flock of black and white sheep, 2 out of 5 sheep are white. If there are 8 more black sheep than white sheep, how many sheep are in the flock?

40

32. [Problem Solving 2] *

Each of my daughters has as many brothers as sisters, but each of my sons has three times as many sisters as brothers. How many children do I have?

5

33. [Problem Solving 3] *

All shirts are the same price. Which deal is cheaper per shirt?

- A) Buy 2 shirts and get 25% off
- B) Buy 3 shirts and save 30%

B



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Even a mistake may turn out to be the one thing necessary to a worthwhile achievement.
Henry Ford

1. [+ Whole Numbers to 10]

	21	34	30	17	9	15	26	23	32	28
+ 9	30	43	39	26	18	24	35	32	41	37

2. [- Whole Numbers to 10]

	23	30	45	18	39	42	16	27	21	14
- 10	13	20	35	8	29	32	6	17	11	4

3. [× Whole Numbers to 12]

	6	4	7	3	9	10	12	11	5	8
× 12	72	48	84	36	108	120	144	132	60	96

4. [+ Whole Numbers to 12]

	48	12	28	20	24	44	40	16	32	36
÷ 4	12	3	7	5	6	11	10	4	8	9

5. [Large Number +, -]

$$\begin{array}{r} 47281 \\ - 3795 \\ \hline \end{array}$$

43486

6. [Large Number ×, ÷]

$$\begin{array}{r} 225 \\ 11 \overline{) 2475} \\ \underline{22} \\ 27 \\ \underline{22} \\ 50 \\ \underline{44} \\ 60 \\ \underline{55} \\ 50 \\ \underline{44} \\ 60 \\ \underline{55} \\ 50 \\ \underline{44} \\ 60 \\ \underline{55} \\ 50 \end{array}$$

7. [Decimal +, -]

$$\begin{array}{r} 25.8 \\ 7.05 \\ + 49.46 \\ \hline \end{array}$$

82.31

8. [Decimal ×, ÷] *

$$16.2 \div 100 =$$

0.162

9. [Fraction +, -] *

$$\frac{2}{3} - \frac{1}{12} =$$

$\frac{7}{12}$

10. [Fraction ×, ÷] *

$$\frac{5}{6} \times \frac{2}{3} =$$

$\frac{5}{9}$

11. [Percentages] *

$$12.5\% \text{ of } 800 =$$

100

12. [Decimals / Fractions / Percentages] *

To meet increased demand, world food production must rise 50% by 2030. Write this percentage as a fraction in simplest form.

$\frac{1}{2}$

13. [Integers]

Alexander the Great became king in 336 BC and died 13 years later.

What year did he die?

323 BC

14. [Rates / Ratios] *

Which is the best buy?

A) a 5 kg bag of potatoes at \$9.95

B) 5 kg of loose potatoes at \$2.98 per kg

A

15. [Indices / Square Roots]

$$\sqrt{4900} =$$

70

16. [Order of Operations] *

$$(12 + 9 \div 3) \div 5 =$$

3

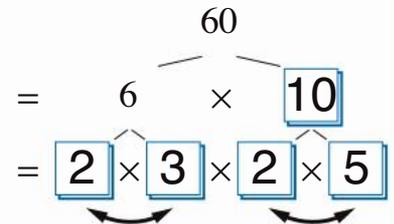
17. [Exploring Numbers]

Round 0.18 to one decimal place.

0.2

18. [Multiples / Factors / Primes]

Express 60 as a product of prime numbers by completing the factor tree.



19. [Number Patterns]

Complete the pattern:

10, 9, 7, 6, 4, **3, 1**

20. [Expressions]

Simplify $e + f + f + e + f$

$2e + 3f$

21. [Substitution] *

Use $V = \frac{Ah}{3}$ to find the volume (V) of a pyramid where $A = 6$ and $h = 8$

16

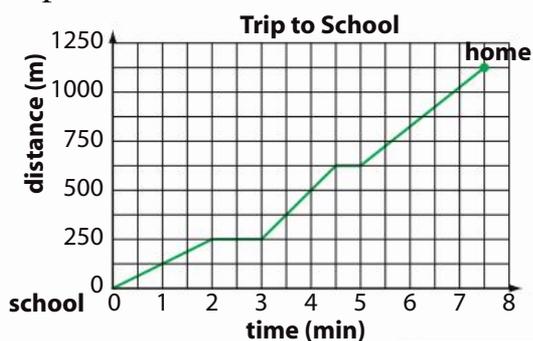
22. [Equations] *

$$3 \times (7 - \quad) = 6$$

5

23. [Coordinates]

If Will cycles to school every day, what is the distance he cycles on his two-way trip?



2250 m

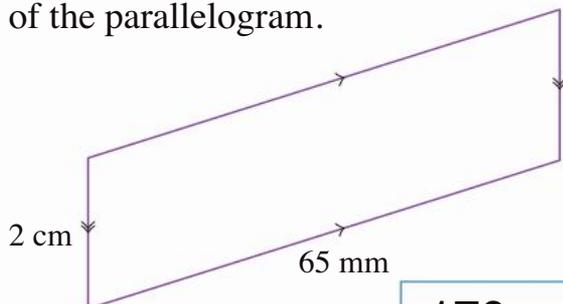
24. [Units of Measurement / Time] *

Some snails can sleep for three years. Express this time in months.

36 months

25. [Perimeter] *

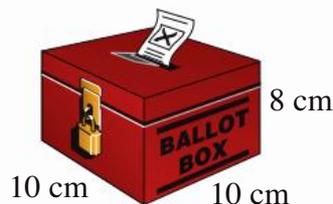
Express all measurements in millimetres and then find the perimeter of the parallelogram.



170 mm

26. [Area / Volume] *

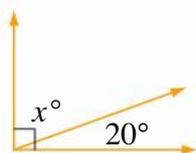
Using $V = l^2h$ find the volume of the ballot box that is a square prism.



800 cm³

27. [Shapes] *

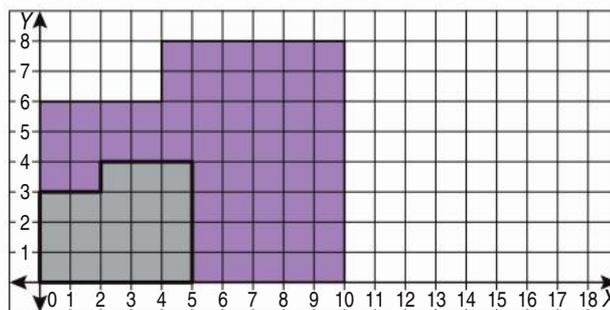
Find the value of x° .



70°

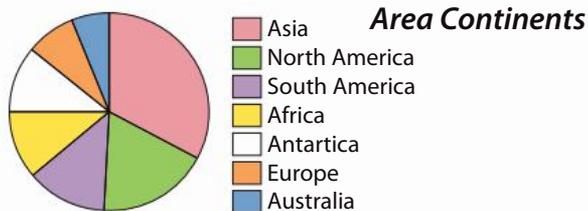
28. [Location / Transformation]

Redraw the polygon after halving the coordinates of its vertices.



29. [Statistics]

Which three continents make up close to half of the world's land surface area?



Europe, Australia and Asia

30. [Probability] *

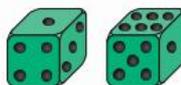
Which event is most likely to happen?

- A) drawing a consonant from letters A to Z
- B) selecting a multiple of 4 from the digits 0 to 9
- C) rolling a 5 on a standard die

A

31. [Problem Solving 1]

Two different views are shown of a pair of identical dice, each numbered 1 to 6. Which number is opposite the number 3? [Note: Though identical, the dice are not regular in that opposite sides do not always add to 7.]



5

32. [Problem Solving 2] *

What is the least number of different colours needed to paint a cube so that no adjacent faces have the same colour?

3

33. [Problem Solving 3] *

Kahi can eat 32 lollies in one hour. Her sister can eat the same amount in 3 hours. How long will it take both of them together to eat 32 lollies?

45 minutes



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Never cut what you can untie.
Joseph Joubert

1. [+ Whole Numbers to 10]

	24	5	18	39	42	33	41	27	16	20
+ 4	28	9	22	43	46	37	45	31	20	24

2. [- Whole Numbers to 10]

	39	45	12	44	13	16	28	31	10	27
- 8	31	37	4	36	5	8	20	23	2	19

3. [× Whole Numbers to 12]

	5	7	3	4	9	10	2	6	11	8
× 6	30	42	18	24	54	60	12	36	66	48

4. [÷ Whole Numbers to 12]

	60	50	15	55	35	40	25	30	20	45
÷ 5	12	10	3	11	7	8	5	6	4	9

5. [Large Number +,-]

$$\begin{array}{r} 48000 \\ - 316 \\ \hline 47684 \end{array}$$

6. [Large Number ×,+]

$$\begin{array}{r} 354 \\ 12 \overline{)4248} \\ \underline{36} \\ 64 \\ \underline{60} \\ 48 \\ \underline{48} \\ 0 \end{array}$$

7. [Decimal +,-]

$$\begin{array}{r} 69.4 \\ 80.79 \\ + 5.61 \\ \hline 155.80 \end{array}$$

8. [Decimal ×,+] *

$$5.8 \div 100 = 0.058$$

9. [Fraction +,-] *

$$\frac{7}{12} + \frac{1}{6} = \frac{3}{4}$$

10. [Fraction ×,+] *

$$\frac{3}{5} \times \frac{1}{9} = \frac{1}{15}$$

11. [Percentages] *

$$66\frac{2}{3}\% \text{ of } 300 = 200$$

12. [Decimals / Fractions / Percentages] *

A pelican consumes $33\frac{1}{3}\%$ of its body weight in one meal. Write this percentage as a fraction in simplest form.

$$\frac{1}{3}$$

13. [Integers]

In 44 BC Julius Caesar was assassinated. Rome was founded 691 years earlier. In what year was it founded?

$$735 \text{ BC}$$

14. [Rates / Ratios] *

Which is the best buy?
A) a 250 g pack of sultanas at \$2.95
B) a 500 g pack of sultanas at \$5.50

$$B$$

15. [Indices / Square Roots]

$$\sqrt{10000} = 100$$

16. [Order of Operations] *

$$(7 - 3) \times (9 - 2) = 28$$

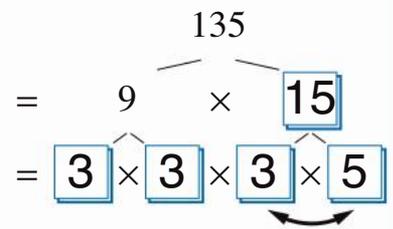
17. [Exploring Numbers]

Round 4.055 to two decimal places.

$$4.06$$

18. [Multiples / Factors / Primes]

Express 135 as a product of prime numbers by completing the factor tree.



19. [Number Patterns]

Complete the pattern:
0, 2, 6, 12, 20, 30, 42

20. [Expressions]

Simplify $h + g + h + g$

$$2g + 2h$$

21. [Substitution] *

Use $A = lw$ to find the area (A) of a rectangle where $l = 6$ and $w = 12$

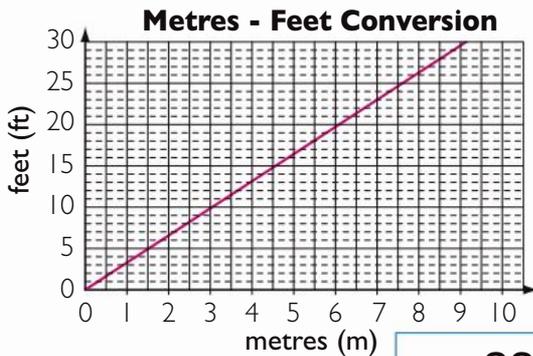
$$72$$

22. [Equations] *

$$2 \times (18 - 13) = 10$$

23. [Coordinates]

How many feet are equivalent to 7 m?



23 ft

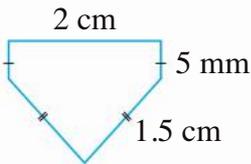
24. [Units of Measurement / Time] *

On average, people can hold their breath for one minute. The world record is seven and a half minutes. Express the record time in seconds.

450 s

25. [Perimeter] *

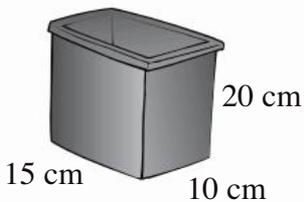
Express all measurements in millimetres and then find the perimeter of the polygon.



60 mm

26. [Area / Volume] *

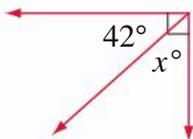
Using $V = lwh$ find the volume of the rubbish bin that is a rectangular prism.



3000 cm³

27. [Shapes] *

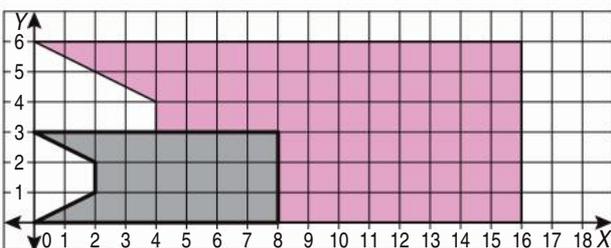
Find the value of x° .



48°

28. [Location / Transformation]

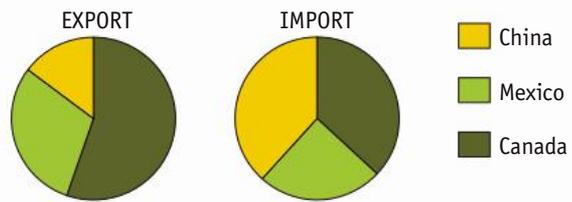
Redraw the polygon after halving the coordinates of its vertices.



29. [Statistics]

To which country does the USA export less than it imports?

Top 3 USA export destinations & import sources



China

30. [Probability] *

Which has a 50% chance of success?

- A) drawing a vowel from letters A to Z
- B) selecting an even number from a list of numbers 10 to 19
- C) choosing a diamond from a deck of 52 playing cards

B

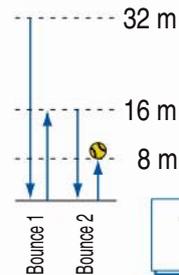
31. [Problem Solving 1] *

In a fish bowl there were 12 fish, some little, others big. If each of the big fish ate 2 little fish and then the little fish were all gone, how many fish were left in the bowl?

4

32. [Problem Solving 2] *

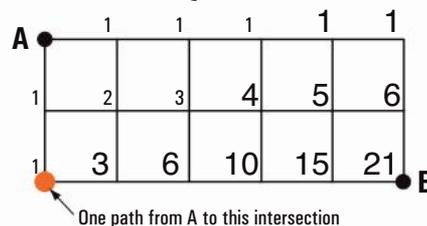
A ball is dropped from a height of 32 m. With each bounce, the ball reaches a height that is half the height of the previous bounce. After which bounce will the ball rebound to a maximum height of 25 cm?



7th

33. [Problem Solving 3] *

You are to go from A to B, always moving right or down along the lines. On how many different paths can you go? [The number of paths from A to various intersections has been included.]



21



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK
Cigarettes are killers that travel in packs.
Mary Ott

1. [+ Whole Numbers to 10]

	55	8	17	16	9	23	14	2	60	21
+ 6	61	14	23	22	15	29	20	8	66	27

2. [- Whole Numbers to 10]

	15	82	9	50	21	6	68	77	14	43
- 4	11	78	5	46	17	2	64	73	10	39

3. [× Whole Numbers to 12]

	3	12	8	6	11	7	10	9	4	5
× 9	27	108	72	54	99	63	90	81	36	45

4. [+ Whole Numbers to 12]

	66	88	33	110	132	55	44	121	77	99
÷ 11	6	8	3	10	12	5	4	11	7	9

5. [Large Number +, -]

$$\begin{array}{r} 43207 \\ + 8057 \\ \hline \end{array}$$

51264

6. [Large Number ×, ÷]

$$\begin{array}{r} 1356 \\ \times 14 \\ \hline 5424 \\ 13560 \\ \hline \end{array}$$

18984

7. [Decimal +, -]

$$\begin{array}{r} 68.0 \\ - 0.6 \\ \hline \end{array}$$

67.4

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.6 \\ \times 0.4 \\ \hline \end{array}$$

0.24

9. [Fraction +, -] *

$$\frac{1}{2} - \frac{1}{6} =$$

$\frac{1}{3}$

10. [Fraction ×, ÷] *

$$\frac{1}{2} \div \frac{2}{3} =$$

$\frac{3}{4}$

11. [Percentages] *

If a \$200 pair of shoes is reduced by 15%, what is the discount?

\$30

12. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.1	$\frac{1}{10}$	10%

13. [Integers]

$$2 - 5 =$$

-3

14. [Rates / Ratios] *

The average turtle swims at 20 km/h and walks at 5 km/h. Find the ratio of swimming to walking rates.

4:1

15. [Indices / Square Roots]

$$1^5 =$$

1

16. [Order of Operations] *

$$5 + 3^2 \times 3 =$$

32

17. [Exploring Numbers]

Choose the whole numbers from this list:

$\frac{3}{5}$, 61, -3, 127, 0.75

61, 127

18. [Multiples / Factors / Primes]

List the prime factors of 35.

5, 7

19. [Number Patterns]

Complete the pattern:

-14, -12, -10, -8, -6, -4

20. [Expressions]

A shop makes \$5 profit for each shirt sold. Which expression shows the profit for x shirts sold?

- A) $5 + x$
- B) $5 \times x$
- C) $x - 5$

B

21. [Substitution] *

If $h = 7$, find the value of h^2

49

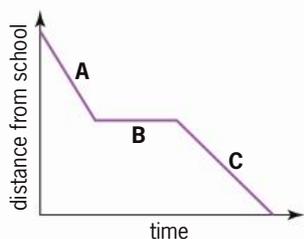
22. [Equations] *

Solve for x :
 $x + 2 = 9$

$x = 7$

23. [Coordinates]

This graph shows Claire's journey as she walks from home to school. Where is Claire at the end of section C?



school

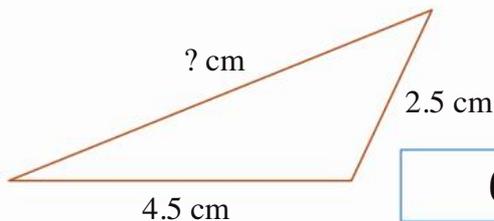
24. [Units of Measurement / Time] *

Find the time in hours and minutes between 8:00 am and 2:15 pm on the same day.

6 h 15 min

25. [Perimeter] *

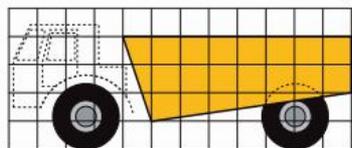
The perimeter of the scalene triangle is 13 cm. Find the missing side length.



6 cm

26. [Area / Volume] *

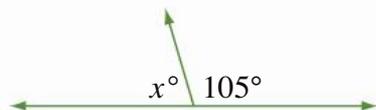
Find the area of the shaded quadrilateral.



19 sq. units

27. [Shapes] *

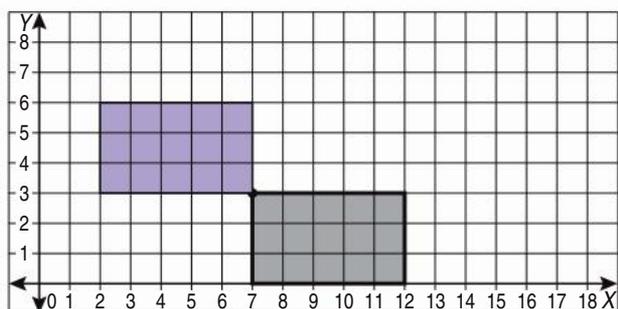
Find the value of x° .



75°

28. [Location / Transformation]

Redraw this rectangle after rotating it 180° about the point of coordinates (7,3).



29. [Statistics]

Complete the stem-and-leaf plot for the data showing the number of stations on each of Japan's monorails:

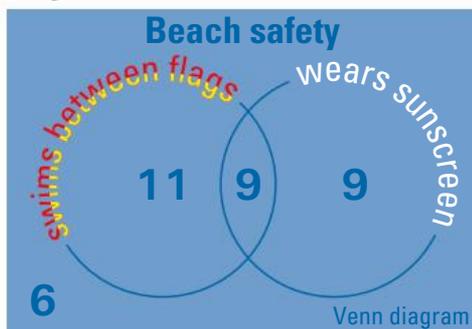
15, 4, 19, 16, 18, 13, 2, 8, 10, 2

Stem	Leaf
0	2 2 4 8
1	0 3 5 6 8 9

Key
0|5 = 5

30. [Probability] *

What is the probability that a person chosen at random swims between the flags? [Give your answer as a fraction in simplest form.]



$\frac{4}{7}$

31. [Problem Solving 1] *

A number of students are standing in a circle. They are evenly spaced and the fifth student is directly opposite the eleventh student. How many students are there altogether?

12

32. [Problem Solving 2] *

A 2-digit number with 2 different digits has a special property:

“When the sum of its digits is added to the product of its digits, the result is the number itself.”

What is the smallest number with this property?

19

33. [Problem Solving 3] *

Angela had a pair of cats. The female gave birth to six kittens, three male and three female. The next year the four female cats each gave birth to six kittens, again, three male and three female. If, in the next year, each female does the same and no cats die, how many cats will Angela then have?

128



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

It is a good thing to learn caution by the misfortunes of others.
Syrus

1. [+ Whole Numbers to 10]

	20	25	7	74	13	6	62	18	41	89
+ 8	28	33	15	82	21	14	70	26	49	97

2. [- Whole Numbers to 10]

	16	21	30	9	15	78	83	12	14	27
- 7	9	14	23	2	8	71	76	5	7	20

3. [× Whole Numbers to 12]

	5	4	8	9	6	12	3	7	11	10
× 5	25	20	40	45	30	60	15	35	55	50

4. [÷ Whole Numbers to 12]

	60	48	132	84	72	120	96	36	24	108
÷ 12	5	4	11	7	6	10	8	3	2	9

5. [Large Number +, -]

$$\begin{array}{r} 73845 \\ + 2956 \\ \hline \end{array}$$

$$\boxed{76801}$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 2308 \\ \times 15 \\ \hline 11540 \\ 23080 \\ \hline \end{array}$$

$$\boxed{34620}$$

7. [Decimal +, -]

$$\begin{array}{r} 3.0 \\ - 0.05 \\ \hline \end{array}$$

$$\boxed{2.95}$$

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.2 \\ \times 0.5 \\ \hline \end{array}$$

$$\boxed{0.10}$$

9. [Fraction +, -] *

$$\frac{1}{10} + \frac{2}{5} =$$

$$\boxed{\frac{1}{2}}$$

10. [Fraction ×, ÷] *

$$\frac{1}{8} \div \frac{4}{9} =$$

$$\boxed{\frac{9}{32}}$$

11. [Percentages] *

If a \$900 plasma screen TV is reduced by 25%, what is the discount?

$$\boxed{\$225}$$

12. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.9	$\frac{9}{10}$	90%

13. [Integers]

$$4 - 9 =$$

$$\boxed{-5}$$

14. [Rates / Ratios] *

A submarine's surface speed is 12 knots, and its diving speed is 20 knots. Find the ratio of diving to surface speed.

$$\boxed{5:3}$$

15. [Indices / Square Roots] *

$$4^3 =$$

$$\boxed{64}$$

16. [Order of Operations] *

$$26 - 6 \times 2^2 =$$

$$\boxed{2}$$

17. [Exploring Numbers]

Choose the whole numbers from this list:

$$7.43, -\frac{8}{3}, 1, 225, \sqrt{5}$$

$$\boxed{1, 225}$$

18. [Multiples / Factors / Primes]

List the prime factors of 12.

$$\boxed{2, 3}$$

19. [Number Patterns]

Complete the pattern:

$$11, 8, 5, 2, -1, \boxed{-4}, \boxed{-7}$$

20. [Expressions]

At Luna Park, Li paid \$10 entry and \$5 for each ride. If Li had x rides, which expression shows the total amount spent?

A) $10 + 5 \times x$

B) $5 + 10 \times x$

C) $10 \times 5 + x$

$$\boxed{A}$$

21. [Substitution] *

If $s = 3$, find the value of $3s^2$

$$\boxed{27}$$

22. [Equations] *

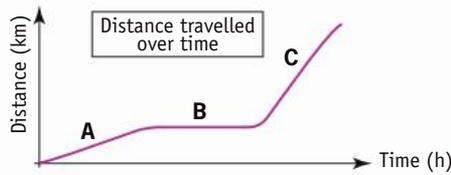
Solve for b :

$$b - 4 = 5$$

$$\boxed{b = 9}$$

23. [Coordinates]

A trip is divided into 3 parts.



Match each part with its best description.

- A Stopped for lunch
- B Driving on a dirt road
- C Driving on a freeway

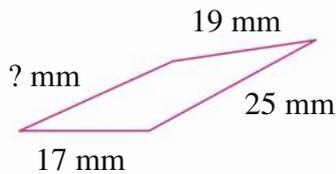
24. [Units of Measurement / Time] *

Find the time in hours and minutes between 5:30 am and 3:00 pm on the same day.

9 h 30 min

25. [Perimeter] *

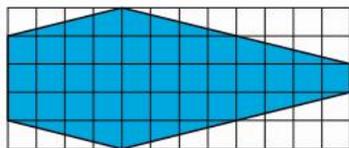
The perimeter of the quadrilateral is 83 mm. Find the missing side length.



22 mm

26. [Area / Volume] *

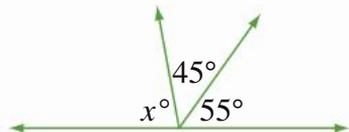
Find the area of the shaded polygon.



40 sq. units

27. [Shapes] *

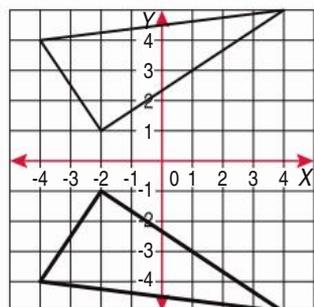
Find the value of x° .



80°

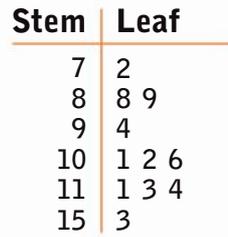
28. [Location / Transformation]

Redraw this triangle after reflecting it in the x -axis.



29. [Statistics] *

This stem-and-leaf plot shows the number of Australian road fatalities in April for the years 2009 to 2019. Find the range of the data.



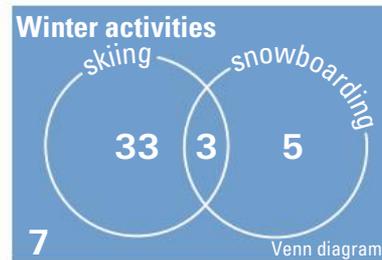
Key
13 | 0 = 130

81

30. [Probability] *

What is the probability that a person chosen at random prefers skiing?

[Give your answer as a fraction in simplest form.]



$\frac{3}{4}$

31. [Problem Solving 1] *

How many of the first ten, positive whole numbers can be expressed as the sum of two different prime numbers?

5, 7, 8, 9, 10

5

32. [Problem Solving 2]

The table below shows the team results after 2 rounds of the 2018 Soccer World Cup. Which country did Brazil play in its third round robin game, given Serbia won their opening match 1 - 0? [Each team plays each other team in the group once. Three points are awarded for a win, one for a draw and none for a lost game.]

GROUP E TEAMS	MP played	W	D	L	GF for	GA against	Pts
Brazil	2	1	1	0	3	1	4
Switzerland	2	1	1	0	3	2	4
Serbia	2	1	0	1	2	2	3
Costa Rica	2	0	0	2	0	3	0

Brazil vs Serbia

33. [Problem Solving 3] *

Nick has six sticks of the following lengths: 3 cm, 3 cm, 5 cm, 9 cm, 11 cm and 13 cm. How many different triangles can he make using three of these sticks?

7



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

It is when we forget ourselves that we do things that are most likely to be remembered.

1. [+ Whole Numbers to 10]

	11	54	6	19	32	45	8	17	63	10
+ 7	18	61	13	26	39	52	15	24	70	17

2. [- Whole Numbers to 10]

	15	97	20	12	53	19	61	14	16	28
- 9	6	88	11	3	44	10	52	5	7	19

3. [× Whole Numbers to 12]

	11	12	5	10	7	9	3	6	8	4
× 8	88	96	40	80	56	72	24	48	64	32

4. [÷ Whole Numbers to 12]

	24	42	18	48	66	72	60	36	30	54
÷ 6	4	7	3	8	11	12	10	6	5	9

5. [Large Number +, -]

$$\begin{array}{r} 51632 \\ + 7578 \\ \hline \end{array}$$

59210

6. [Large Number ×, ÷]

$$\begin{array}{r} 3022 \\ \times 19 \\ \hline 27198 \\ 30220 \\ \hline \end{array}$$

57418

7. [Decimal +, -]

$$\begin{array}{r} 9 \\ - 0.04 \\ \hline \end{array}$$

8.96

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.3 \\ \times 0.9 \\ \hline \end{array}$$

0.27

9. [Fraction +, -] *

$$\frac{8}{15} + \frac{3}{5} =$$

1 $\frac{2}{15}$

10. [Fraction ×, ÷] *

$$\frac{3}{5} \div \frac{1}{2} =$$

1 $\frac{1}{5}$

11. [Percentages] *

If an \$80 jumper is reduced by 60%, what is the sale price?

\$32

12. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.15	$\frac{15}{100} = \frac{3}{20}$	15%

13. [Integers]

$$-2 + 9 =$$

7

14. [Rates / Ratios] *

China issued one of the largest stamps ever, 210 mm long and 65 mm wide. Find the ratio of length to width.

42:13

15. [Indices / Square Roots] *

$$3^4 =$$

81

16. [Order of Operations] *

$$5 + (8 - 4)^2 =$$

21

17. [Exploring Numbers]

Choose the integers from this list:

$\frac{7}{9}$, 184, -20, 3.14, 630

184, -20, 630

18. [Multiples / Factors / Primes]

List the prime factors of 30.

2, 3, 5

19. [Number Patterns]

Complete the pattern:

-25, -20, -15, -10, -5, 0

20. [Expressions]

The canteen sells cups of noodles for \$3 and fruit drinks for \$2. Which expression shows the cost of x cups of noodles and y fruit drinks?

- A) $3 \times x + 3 \times y$
- B) $3 \times x + 2 \times y$
- C) $2 \times x + 3 \times y$

B

21. [Substitution] *

If $v = 2$, find the value of $13 - v^2$

9

22. [Equations] *

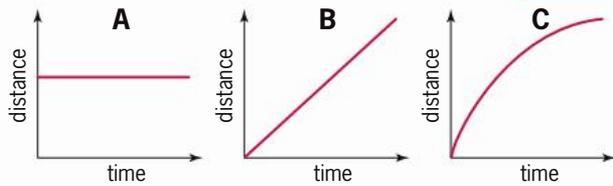
Solve for m :
 $7 + m = 15$

$m = 8$

23. [Coordinates]

Alex cycles at a constant speed. Which graph shows this?

B



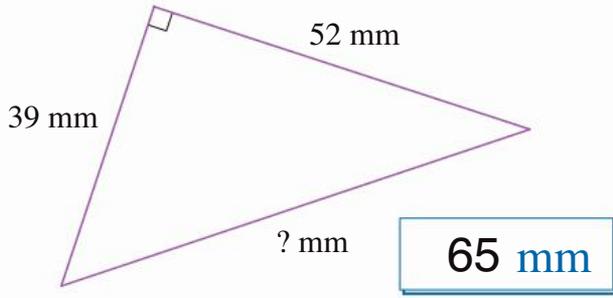
24. [Units of Measurement / Time] *

Find the time in hours and minutes between 22:30 and 04:20 the next day.

5 h 50 min

25. [Perimeter] *

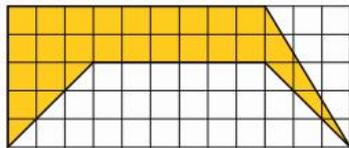
The perimeter of the right-angled triangle is 156 mm. Find the missing side length.



65 mm

26. [Area / Volume] *

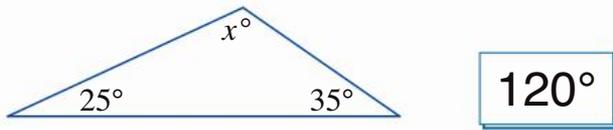
Find the area of the shaded polygon.



25.5 sq. units

27. [Shapes] *

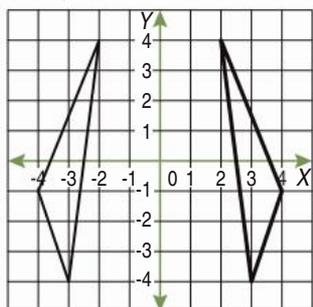
Find the value of x° .



120°

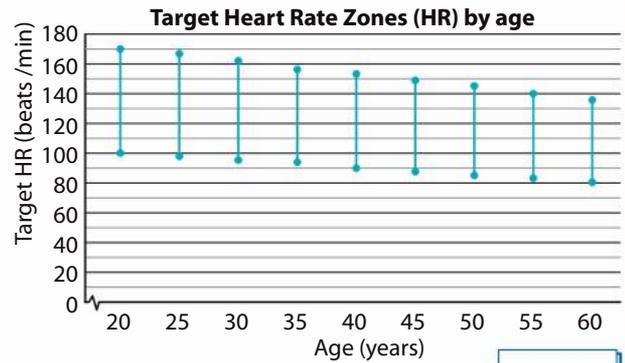
28. [Location / Transformation]

Redraw this triangle after reflecting it in the y-axis.



29. [Statistics]

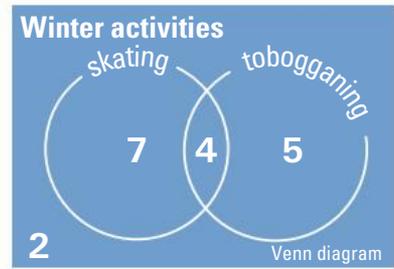
For what age is the target heart rate zone between 85 and 145 beats per minute?



50

30. [Probability] *

What is the probability that a person chosen at random enjoys both skating and tobogganing? [Give your answer as a fraction in simplest form.]



$\frac{2}{9}$

31. [Problem Solving 1] *

A bottle of soft drink is two thirds full. One quarter of the drink is then consumed. How full is the bottle now?

half full

32. [Problem Solving 2] *

Genevieve forgot the last two digits of her four-digit locker code: **21??**

If the number is divisible by 5, by 6 and by 7, what is Genevieve's locker code?

2100

33. [Problem Solving 3] *

Each of the letters below represents a different digit. If $EAT = 721$, what does TURKEY represent?



TURKEY = 104375



Name:

Due Date: / /

Parent's Signature:

QUOTE OF THE WEEK

Nowadays, when buying a present, it's hard to find something that looks like it cost as much as it did.
W. P. G.

1. [+ Whole Numbers to 10]

	12	14	17	30	75	28	41	79	13	6
+ 9	21	23	26	39	84	37	50	88	22	15

2. [- Whole Numbers to 10]

	18	22	16	39	5	27	14	3	20	11
- 3	15	19	13	36	2	24	11	0	17	8

3. [× Whole Numbers to 12]

	3	8	11	7	10	12	9	4	6	5
× 12	36	96	132	84	120	144	108	48	72	60

4. [+ Whole Numbers to 12]

	28	77	56	35	49	21	63	42	84	70
÷ 7	4	11	8	5	7	3	9	6	12	10

5. [Large Number +,-]

$$\begin{array}{r} 69780 \\ + 2453 \\ \hline \end{array}$$

$$\boxed{72233}$$

6. [Large Number ×,+]

$$\begin{array}{r} 4203 \\ \times 37 \\ \hline 29421 \\ 126090 \\ \hline \end{array}$$

$$\boxed{155511}$$

7. [Decimal +,-]

$$\begin{array}{r} 51 \\ - 0.07 \\ \hline \end{array}$$

$$\boxed{50.93}$$

8. [Decimal ×,+]

$$\begin{array}{r} 0.9 \\ \times 0.4 \\ \hline \end{array}$$

$$\boxed{0.36}$$

9. [Fraction +,-] *

$$\frac{7}{10} - \frac{9}{20} = \boxed{\frac{1}{4}}$$

10. [Fraction ×,+] *

$$\frac{2}{5} \div \frac{1}{4} =$$

$$\boxed{1\frac{3}{5}}$$

11. [Percentages] *

If an \$8000 diamond ring is discounted by 40%, what is the sale price?

$$\boxed{\$4800}$$

12. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.6	$\frac{6}{10} = \frac{3}{5}$	60%

13. [Integers]

$$-12 + 6 =$$

$$\boxed{-6}$$

14. [Rates / Ratios] *

The Singapore Flyer observation wheel has a height of 16500 cm and a diameter of 150 m. Find the ratio of diameter to height.

$$\boxed{10:11}$$

15. [Indices / Square Roots] *

$$6^3 =$$

$$\boxed{216}$$

16. [Order of Operations] *

$$4 \times (8 - 3)^2 =$$

$$\boxed{100}$$

17. [Exploring Numbers]

Choose the integers from this list:

$$8.4, -12, 17, \frac{2}{4}, 100$$

$$\boxed{-12, 17, 100}$$

18. [Multiples / Factors / Primes]

List the prime factors of 42.

$$\boxed{2, 3, 7}$$

19. [Number Patterns]

Complete the pattern:

$$13, 9, 5, 1, \boxed{-3}, \boxed{-7}$$

20. [Expressions]

Rose has x dollars, and Linda has y dollars. If Linda has \$5 more than Rose, which expression shows this?

A) $x + y = 5$

B) $x - y = 5$

C) $y - x = 5$

$$\boxed{C}$$

21. [Substitution] *

If $e = 5$, find the value of $2e^2 - 12$

$$\boxed{38}$$

22. [Equations] *

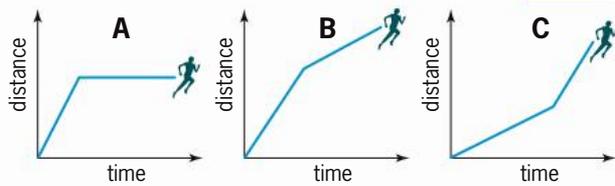
Solve for v :

$$20 - v = 6$$

$$\boxed{v = 14}$$

23. [Coordinates]

Rita jogs at a constant speed and then sprints across an intersection. Which graph shows this?



C

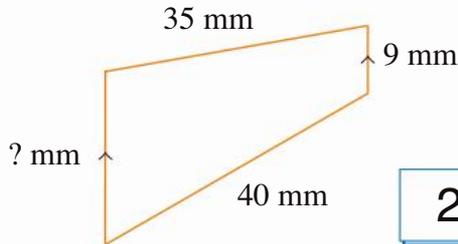
24. [Units of Measurement / Time] *

Find the time in hours and minutes between 02:25 and 15:50 on the same day.

13 h 25 min

25. [Perimeter] *

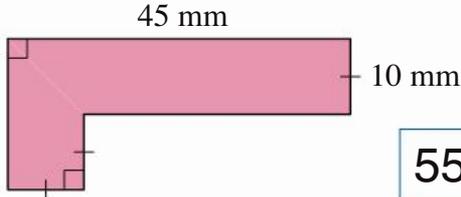
The perimeter of the trapezium is 107 mm. Find the missing side length.



23 mm

26. [Area / Volume] *

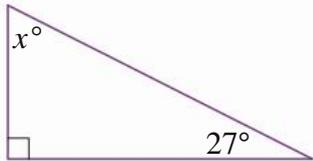
Find the area of the polygon.



550 mm²

27. [Shapes] *

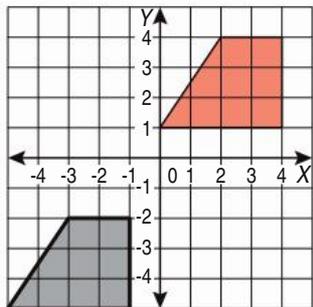
Find the value of x° .



63°

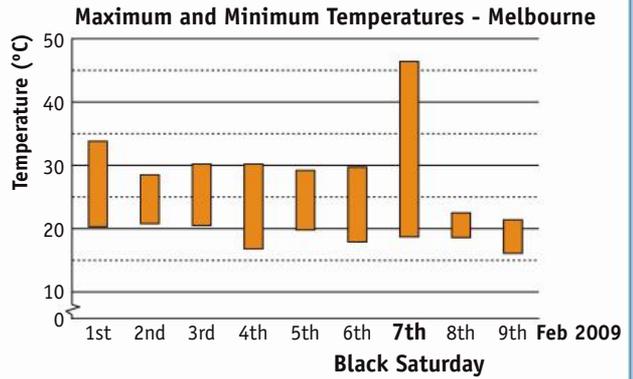
28. [Location / Transformation]

Redraw this trapezium after subtracting 5 units from the x -coordinates and 6 units from the y -coordinates of its vertices.



29. [Statistics]

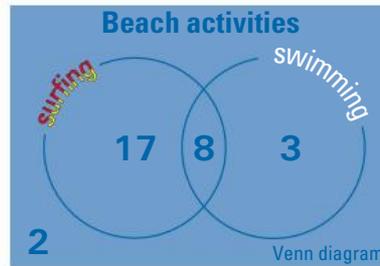
Which of the days shown had the least change in temperature?



8th Feb 2009

30. [Probability] *

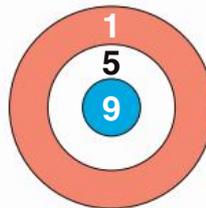
What is the probability that a person chosen at random went surfing? [Give your answer as a fraction in simplest form.]



5/6

31. [Problem Solving 1] *

Four darts are thrown at the target. If each dart lands on the target, how many different point totals are possible?



The only possible targets are multiples of 4 from 4 to 36.

9

32. [Problem Solving 2] *

What single discount is equivalent to successive discounts of 10% and 20%?

28%

33. [Problem Solving 3] *

Pierre de Fermat, a 17th century French lawyer, stated that any whole number can be written as the sum of four or less square numbers. For example:

$$15 = 3^2 + 2^2 + 1^2 + 1^2 \quad \text{[or} \quad 7^2 + 6^2 + 3^2 + 1^2$$

$$\text{Express 95 as such a sum.} \quad \text{[or} \quad 6^2 + 5^2 + 5^2 + 3^2]$$

95 = 9² + 3² + 2² + 1²

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32

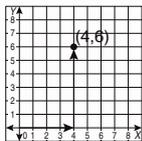


Record Keeping Sheets

pages 1 - 10

1.1

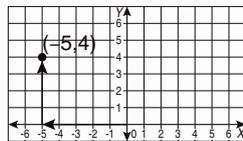
1. 3,7,5,12,9, 11,4,8,10,6
2. 8,10,5,7,11, 2,4,9,3,6
3. 24,12,6,27,33, 21,9,15,18,30
4. 4,1,6,8,2, 5,9,3,7,10
5. 1130
6. 84
7. 78.6
8. 1.8
9. $\frac{4}{9}$
10. $\frac{3}{8}$
11. 15%
12. 70%
13. B
14. 2 : 3
15. 2×2
16. 11
17. B
18. 4, 8, 12, 16, 20
19. 41, 48
20. 2y
21. 8
22. 6
23. (4,6)



24. 72 hours
25. 4 cm
26. 16 cm^2
27. 75°
28. left
29. 5
30. 48
31. 25 min
32.
 $2 + 2 = 4$ or $3 + 1 = 4$ or $3 + 2 = 5$
33. 40

1.2

1. 4,7,9,3,10, 2,5,6,8,11
2. 9,1,0,8,2, 3,5,6,4,7
3. 20,45,55,25,35, 60,50,30,40,15
4. 3,6,1,9,7, 4,10,2,5,8
5. 2527
6. 12
7. 8.05
8. 2.1
9. $\frac{3}{5}$
10. $\frac{9}{10}$
11. 40%
12. $\frac{1}{3}$ or $\frac{2}{6}$
13. C
14. 6 : 1
15. 4^4
16. 13
17. C
18. 7, 14, 21, 28, 35
19. 48, 57
20. 4x
21. 15
22. 8
23. (-5,4)



24. 900 seconds
25. 120 mm
26. 13 cm^2
27. 120°
28. 8
29. 4
30. 13
31. 128, 129
32. 41
33. 12

1.3

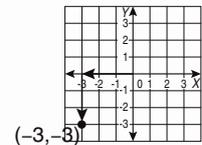
1. 12,7,14,9,6, 15,10,11,13,8
2. 6,3,2,9,1, 8,10,4,5,7
3. 4,6,1,9,5, 8,2,7,10,3
4. 6,11,12,9,5, 3,8,7,4,10
5. 2624
6. 310
7. 7.19
8. 0.3
9. $\frac{5}{7}$
10. $1\frac{5}{7}$
11. 7%
12. $\frac{3}{8}$
13. B
14. 2 : 5
15. $5 \times 5 \times 5$
16. 3
17. true
18. 6, 12, 18, 24
19. 4.2, 5
20. h
21. 6
22. 7
23. (5,-2)



24. 3 h
25. 140 mm
26. 8 cm^2
27. 25°
28. Todd Mall
29. 16
30. 251
31. 5
32. 21
33. 3 (5,19) (7,17) (11,13)

1.4

1. 10,8,12,15,16, 9,13,7,14,11
2. 8,10,1,9,2, 4,6,3,5,7
3. 4,16,2,8,10, 14,12,18,6,20
4. 5,9,4,10,8, 6,3,7,12,11
5. 7165
6. 570
7. 5.64
8. 0.6
9. $\frac{7}{8}$
10. $2\frac{4}{5}$
11. 23%
12. 40%
13. D
14. 1 : 18
15. 3^5
16. 32
17. false
18. 4, 8, 12, 16, 20
19. $\frac{7}{9}, \frac{8}{9}$
20. 2t
21. 13
22. 10
23. (-3,-3)

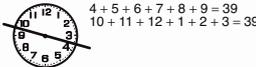


24. 270 minutes
25. 8 cm
26. 10 cm^2
27. 145°
28. Cowes
29. 15 weeks
30. 16
31. $\blacktriangle = 4$ $\blacksquare = 15$
32. Yina
33.
$$\begin{array}{r} 1 \ 2 \ 2 \\ 9 \ 4 \ 5 \\ + \ 9 \ 7 \ 1 \\ \hline 2 \ 0 \ 3 \ 8 \end{array}$$

1.5

1. 6,13,4,10,9,11,7,8,5,12
2. 4,1,8,7,2,6,10,3,9,5
3. 8,28,12,32,44,40,16,24,36,20
4. 12,3,8,5,4,9,6,7,11,10
5. 3991
6. 5610
7. 38.5
8. 28
9. $1\frac{2}{11}$
10. 2
11. 12%
12. $\frac{2}{3}$
13. -9, -3, 0, 4, 7
14. 2 : 3
15. 9
16. 6
17. 3
18. 15
19. 7, 2
20. $2ab$
21. 24
22. 4
23. Olympic
24. 4000 m
25. 6 cm
26. yes
27. 60°
28. 2 
29. true
30. D
31. 1:30 pm
32. 5
33. 10000

1.6

1. 7,5,9,6,12,10,11,14,13,8
2. 1,10,4,3,9,5,2,8,6,7
3. 18,36,54,6,60,24,12,48,42,30
4. 10,8,5,9,12,4,7,3,11,6
5. 8796
6. 42300
7. 43.5
8. 350
9. $1\frac{3}{7}$
10. $\frac{1}{2}$
11. 76%
12. $\frac{1}{3}$
13. 6, 2, 0, -1, -8
14. 3 : 2
15. 25
16. 50
17. 9
18. 63
19. 22, 15
20. $3xy$
21. 5
22. 7
23. E5
24. 3000 mm
25. 126 mm
26. no
27. 110°
28. 4 
29. elephant
30. A
31. 
32.

+	8	6	11	4
5	13	11	16	9
8	16	14	19	12
9	17	15	20	13
6	14	12	17	10
33. $\frac{11}{4}$

1.7

1. 5,8,7,12,10,6,11,14,9,13
2. 2,7,10,3,5,8,1,4,9,6
3. 56,14,49,70,21,28,42,7,63,35
4. 12,3,6,8,1,10,4,9,5,7
5. 7635
6. 80700
7. 5.36
8. 7.6
9. $1\frac{2}{5}$
10. $1\frac{1}{2}$
11. 59%
12. $\frac{2}{5}$
13. $-8^\circ\text{C}, -5^\circ\text{C}, 3^\circ\text{C}, 6^\circ\text{C}$
14. 3 : 10
15. 16
16. 2
17. 5000
18. 24
19. 6.1, 5.7
20. wx
21. 42
22. 20
23. (2,3)
24. 550 cm
25. 160 mm
26. yes
27. 150°
28. 6 
29. 3
30. B
31. $\frac{3}{4}$
32. Plan B
33. 23

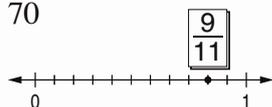
1.8

1. 12,14,8,11,16,15,13,10,9,17
2. 4,6,1,8,5,7,10,2,9,3
3. 20,60,40,80,50,100,110,90,30,70
4. 11,2,9,3,8,7,10,6,5,4
5. 8157
6. 925000
7. 28.9
8. 1390
9. $2\frac{1}{3}$
10. $1\frac{1}{3}$
11. 92%
12. $\frac{2}{3}$
13. $7^\circ\text{C}, 2^\circ\text{C}, -1^\circ\text{C}, -4^\circ\text{C}$
14. 5 : 2
15. 64
16. 9
17. 600
18. 40
19. $\frac{9}{7}, \frac{6}{7}$
20. jk
21. 3
22. 24
23. Barcelona
24. 700 mm
25. 140 mm
26. no
27. 50°
28. 8 
29. tin
30. D
31. 543, 12
32.

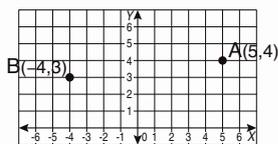
1	2	3	4	5
4	3	2	5	1
5	1	4	3	2
2	4	5	1	3
3	5	1	2	4
33. 8:30

2.1

- 13, 10, 11, 8, 14, 7, 12, 6, 19, 15
- 10, 3, 5, 7, 4, 6, 8, 1, 9, 12
- 77, 33, 88, 44, 11, 110, 55, 66, 99, 22
- 4, 9, 3, 6, 8, 10, 5, 7, 11, 2
- 455
- 94
- 7.04
- 10.5
- $3\frac{4}{5}$
- \$15
- 70



- $0 > -4$
- 4 km/h
- 1000
- 12
- 2
- yes
- | | 1 | 2 | 3 | 4 | 5 |
|-------|---|---|---|---|----|
| men | 1 | 2 | 3 | 4 | 5 |
| women | 2 | 4 | 6 | 8 | 10 |



- 8 kg
- 85 mm
- 29 sq. units
-
- 180 km
- 4
- 4

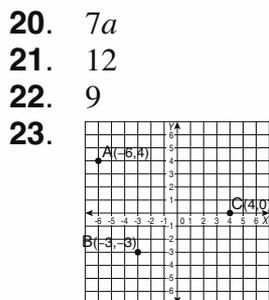
Possible outcomes		Coin 1	
		H	T
Coin 2	H	H,H	H,T
	T	T,H	T,T

- 9 cm
- 4
- 2

2.2

- 22, 18, 15, 17, 13, 24, 16, 11, 19, 10
- 8, 5, 1, 12, 3, 6, 9, 4, 7, 10
- 20, 12, 16, 22, 8, 18, 6, 10, 14, 24
- 3, 5, 7, 2, 9, 11, 8, 6, 10, 4
- 323
- 84
- 5.85
- 10.4
- $1\frac{2}{5}$
- \$4
- 45

- $-1 > -8$
- 80 km/h
- 100
- 8
- 0.01 or $\frac{1}{100}$
- no
- | | 16 | 24 | 32 | 40 | 48 |
|-----------|----|----|----|----|----|
| km (city) | 16 | 24 | 32 | 40 | 48 |
| litres | 2 | 3 | 4 | 5 | 6 |



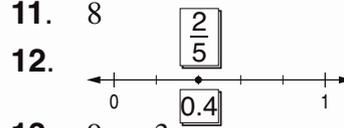
- $7a$
- 12
- 9
-
- 200 km
- 2
- 8

Possible outcomes		Spinner			
		1	2	3	4
Coin	H	H,1	H,2	H,3	H,4
	T	T,1	T,2	T,3	T,4

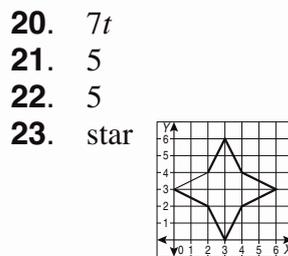
- 122
- 8
-

2.3

- 17, 20, 15, 12, 11, 14, 6, 13, 19, 8
- 10, 9, 3, 6, 8, 2, 7, 5, 1, 4
- 56, 80, 24, 16, 40, 32, 64, 48, 72, 88
- 1, 6, 3, 7, 10, 2, 8, 4, 9, 5
- 1826
- 228
- 90.0
- 11.7
- $2\frac{4}{9}$
- \$25
- 8



- $9 > -3$
- 15 000 m
- 10
- 11
- 0.007 or $\frac{7}{1000}$
- yes
- | | 1 | 2 | 3 | 4 | 5 |
|--------------------|-----|-----|-----|-----|-----|
| Number of bedrooms | 1 | 2 | 3 | 4 | 5 |
| Cost per week (\$) | 200 | 275 | 350 | 425 | 500 |



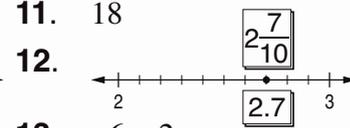
- $7t$
- 5
- 5
- star
- 60 tonnes
- 15 cm
- 18 sq. units
-
- 1800 m
- NT
- 8

Outcomes (sample space)		
V-necked	orange	pocket
V-necked	orange	no pocket
V-necked	blue	pocket
V-necked	blue	no pocket
round	orange	pocket
round	orange	no pocket
round	blue	pocket
round	blue	no pocket

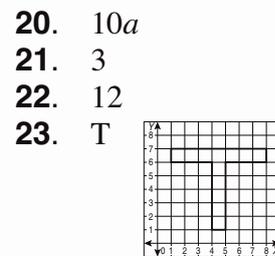
- $5 + 8 - 20 \div 5 = 9$
- 40 960
- 16

2.4

- 12, 15, 21, 17, 19, 13, 20, 16, 18, 14
- 10, 14, 18, 11, 5, 7, 16, 3, 12, 9
- 48, 60, 132, 96, 108, 36, 120, 144, 84, 72
- 10, 4, 7, 3, 8, 11, 5, 6, 12, 9
- 3942
- 54
- 53.2
- 28.8
- $4\frac{3}{5}$
- \$75
- 18



- $-6 < 2$
- 420 km
- 10 000
- 5
- A
- no
- | | 35 | 70 | 105 | 140 | 175 |
|--------|----|----|-----|-----|-----|
| adults | 35 | 70 | 105 | 140 | 175 |
| day | 1 | 2 | 3 | 4 | 5 |



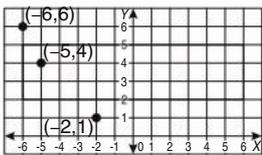
- $10a$
- 3
- 12
- T
- 5000 kg
- 12.5 cm
- 11 sq. units
-
- 160 km
- brackish
- 6

Outcomes (sample space)	
10 GB	white
10 GB	pink
10 GB	black
20 GB	white
20 GB	pink
20 GB	black

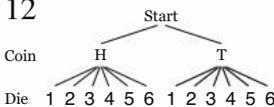
- 6
- 4, 8
- 7 5 8 7 5 8 7 5 8 7 5 8 7 5 8 7 5 8 7 5

2.5

- 15, 10, 16, 11, 19, 22, 7, 13, 18, 5
- 2, 9, 0, 14, 1, 8, 6, 3, 7, 5
- 28, 42, 77, 21, 49, 84, 56, 35, 70, 63
- 3, 12, 6, 5, 11, 9, 7, 8, 4, 10
- 1348
- 300
- 0.55
- 0.06
- $2\frac{2}{5}$
- 6
- \$30
- $\frac{2}{3} = \frac{24}{36}$
- 3
- 48 m
- 3
- 4
- 4062
- 1, 3, 5, 15
- 48, 96
- 6c
- 5
- 25
- C



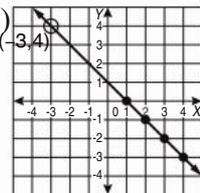
- 30 m
- 16 cm
- 12 cm²
-
- 90°
- 5
- 12



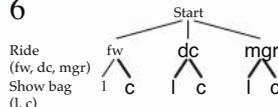
- 49
-
- 20

2.6

- 12, 16, 13, 14, 20, 18, 16, 15, 19, 17
- 10, 13, 4, 9, 1, 6, 15, 7, 8, 2
- 35, 15, 10, 30, 50, 40, 20, 25, 45, 55
- 12, 10, 11, 5, 6, 8, 4, 7, 3, 9
- 9740
- 228
- 2.38
- 0.09
- $3\frac{5}{7}$
- 10
- \$240
- $\frac{28}{32} = \frac{7}{8}$
- 22°C
- 56 km
- 5
- 18
- 10439
- 1, 2, 4, 7, 14, 28
- 81, 243
- 7m
- 3
- 8
- (-3, 4)



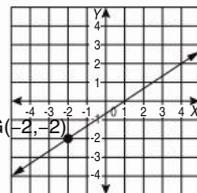
- 250 cm
- 100 mm
- 10 cm²
-
- 60°
- 2007
- 6



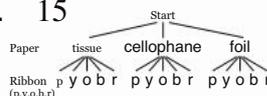
- 6
- 86
-

2.7

- 15, 19, 11, 14, 12, 16, 13, 20, 8, 17
- 6, 0, 3, 9, 7, 5, 8, 4, 1, 2
- 36, 30, 33, 15, 18, 24, 12, 21, 9, 27
- 8, 2, 6, 10, 3, 4, 7, 1, 5, 9
- 5936
- 792
- 5.6
- 0.71
- $1\frac{1}{3}$
- 7
- \$0.80
- $\frac{3}{5} = \frac{36}{60}$
- 9 h
- 14 km
- 7
- 16
- six thousand, four hundred
- 1, 2, 3, 4, 6, 12
- 3, 9
- 5p
- 7
- 18
- G



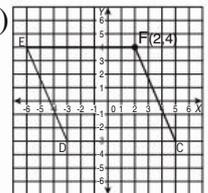
- 12 km
- 54 mm
- 14 cm²
-
- 180°
- 3
- 15



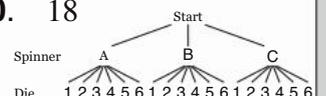
-
- 18
-

2.8

- 20, 17, 15, 11, 19, 14, 13, 18, 16, 12
- 11, 6, 8, 4, 9, 3, 12, 7, 10, 5
- 20, 24, 12, 48, 40, 28, 44, 16, 36, 32
- 11, 3, 7, 9, 5, 3, 8, 12, 10, 4
- 8790
- 3350
- 55.4
- 0.21
- $2\frac{1}{6}$
- 9
- 50¢
- $\frac{3}{5} = \frac{18}{30}$
- 9
- 60 km/h
- 6
- 15
- twenty-three thousand
- 1, 2, 3, 5, 6, 10, 15, 30
- 32, 128
- 4j
- 32
- 14
- (2, 4)



- 4600 mm
- 12 cm
- 169 mm²
-
- 90°
- spider monkey
- 18



-
- AU\$2.00
- 2

3.1

1. 17,21,23,18,12, 20,25,9,24,16
2. 9,5,17,1,2, 4,16,3,10,18
3. 48,84,120,72,144, 60,108,132,96,36
4. 10,5,11,9,8, 3,2,6,7,4
5. 3529
6. 2550
7. 72.30
8. 1.64
9. $\frac{1}{4}$
10. $\frac{1}{10}$
11. 48
12. 37%
13. 168 m
14. 2 : 11 : 15
15. 8
16. 7
17. 710
18. 1, 2, 3, 6
19. 6, 2
20. $z + 12$
21. 11
22. 36

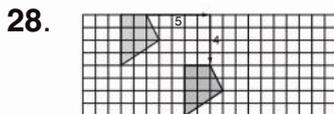
Number of days (x)	Number of pages read (50x)
2	$50 \times 2 = 100$
4	$50 \times 4 = 200$
6	$50 \times 6 = 300$
8	$50 \times 8 = 400$
10	$50 \times 10 = 500$
12	$50 \times 12 = 600$

24. 3000 mL

25. 32 m

26. 2 cm^2

27. C



29. 26

30. $\frac{1}{6}$

31. 14

32. 9

33. 28

3.2

1. 25,21,17,24,16, 22,30,23,28,19
2. 11,2,3,7,18, 6,20,15,4,19
3. 72,45,27,108,81, 90,36,54,63,99
4. 5,9,11,7,12, 6,8,4,10,3
5. 1807
6. 12 800
7. 35.90
8. 56.42
9. $\frac{2}{3}$
10. $\frac{1}{24}$
11. 75
12. 80%
13. 3245 years
14. 5 : 7 : 10
15. 9
16. 9
17. 1300
18. 1, 2, 3, 4, 6, 12
19. 14, 7
20. $2x$ or $2 \times x$
21. 0
22. 60

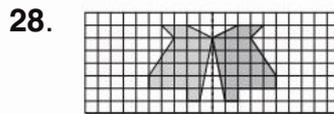
Number of minutes (x)	Phone bill in cents (20x)
0.5	$20 \times 0.5 = 10$
1.0	$20 \times 1.0 = 20$
1.5	$20 \times 1.5 = 30$
2.0	$20 \times 2.0 = 40$
2.5	$20 \times 2.5 = 50$
3.0	$20 \times 3.0 = 60$

24. 15 000 mL

25. 390 mm

26. 8 cm^2

27. D



29. mode = 2 range = 18

30. $\frac{1}{4}$

31. 12, 13, 14, 15

32. 50¢ or \$0.50

33. 5 kg

3.3

1. 20,25,7,22,11, 23,18,14,6,29
2. 4,15,1,18,7, 12,19,10,16,3
3. 11,99,55,66,22, 33,77,110,88,44
4. 8,4,10,12,5, 7,3,6,11,9
5. 167
6. 29 400
7. 36.54
8. 20.428
9. $\frac{3}{4}$
10. $\frac{2}{15}$
11. 28
12. 0.9
13. 106°C
14. 3 : 5 : 9
15. 1
16. 14
17. 840
18. 3
19. 40, 8
20. $7d$ or $7 \times d$
21. -12
22. 24

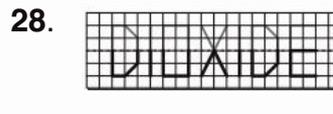
No of weeks (x)	Number of practice hours (8x)
1	$8 \times 1 = 8$
2	$8 \times 2 = 16$
3	$8 \times 3 = 24$
4	$8 \times 4 = 32$
5	$8 \times 5 = 40$
6	$8 \times 6 = 48$

24. 7 L

25. 590 m

26. 6 cm^2

27. B



29. 2

30. $\frac{5}{6}$

31. 140 m

32. 240 (5, 6, 8)

33. September 2029

3.4

1. 20,17,26,22,11, 25,29,18,24,23
2. 14,1,12,18,15, 6,13,4,9,7
3. 42,36,6,48,12, 18,60,54,24,30
4. 6,3,7,10,4, 5,9,8,12,11
5. 4785
6. 854 400
7. 139.36
8. 12.210
9. $\frac{3}{5}$
10. $\frac{6}{35}$
11. 12
12. 0.02
13. 48 m
14. 5 : 2 : 10
15. 11
16. 11
17. 33 000
18. 9
19. $1, \frac{1}{3}$
20. $b - 5$
21. -3
22. 70

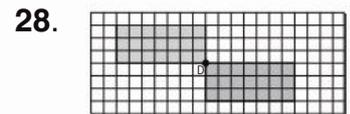
Dollars earned (x)	Dollars saved (x + 4)
20	$20 + 4 = 24$
40	$40 + 4 = 44$
60	$60 + 4 = 64$
80	$80 + 4 = 84$
100	$100 + 4 = 104$
120	$120 + 4 = 124$

24. 0.8 L

25. 1400 m

26. 750 mm^2

27. D



29. 10°C

30. $\frac{1}{3}$

31. $\frac{8}{15}$

32. \$40

33. 714

3.5

- 13, 24, 17, 19, 22, 25, 8, 20, 21, 26
- 17, 9, 25, 2, 20, 13, 21, 14, 8, 26
- 32, 16, 24, 48, 72, 8, 80, 64, 56, 40
- 7, 11, 9, 5, 12, 10, 6, 3, 4, 8
- 6308
- 1924
- 41.95
- 8.3
- $5\frac{2}{5}$
- $\frac{1}{4}$
- \$10
- 0.75
- basement
- false
- 400
- 10
- 0.08, 0.68, 0.806, 0.86
- 2, 3, 5, 7
- 16, 22
- $3x, 2x$
- 3
- 32
- B
- 35 days
- 110 mm
- 1080 cm^3
- B
-
- 16 km/h
- $\frac{1}{3}$
- \$2
- 64 cm^2
- | | | | | | |
|----|---|----|---|---|----|
| 9 | ÷ | 3 | - | 1 | 2 |
| + | | + | | × | |
| 7 | + | 6 | - | 4 | 9 |
| × | | + | | ÷ | |
| 5 | × | 8 | ÷ | 2 | 20 |
| 44 | | 17 | | 2 | |

3.6

- 30, 22, 25, 28, 14, 23, 26, 21, 29, 27
- 1, 22, 14, 18, 16, 5, 23, 10, 19, 7
- 12, 18, 21, 36, 27, 9, 33, 24, 15, 30
- 3, 9, 7, 4, 10, 6, 11, 12, 8, 5
- 15 815
- 4830
- 57.78
- 5.7
- 2
- $\frac{1}{30}$
- \$1.50
- $\frac{7}{10}$
- surgical
- B
- 1600
- 37
- 0.53, 0.305, 0.05, 0.035
- 89
- 19, 24
- $i, 4i$
- 10
- 40
- C
- 36 months
- 16 cm
- 60 cm^3
- A
-
- 170 days
- $\frac{1}{2}$
- 55
- 63
-

3.7

- 27, 23, 18, 29, 22, 15, 26, 30, 21, 24
- 6, 18, 1, 15, 13, 9, 17, 4, 22, 20
- 44, 32, 40, 16, 28, 8, 20, 24, 36, 12
- 5, 9, 3, 6, 8, 7, 12, 4, 10, 11
- 5700
- 4941
- 89.97
- 3.2
- $4\frac{1}{7}$
- $\frac{2}{5}$
- \$400
- $\frac{53}{100}$
- reef
- 20
- 8100
- 29
- $\frac{5}{6}$
- 23, 29, 31, 37
- 10, 5
- $2l, l$
- 14
- 16
-
- 4 min
- 15.5 cm
- 48 cm^3
- hexagonal pyramid
-
- 1945
- $\frac{1}{5}$
- D
- 42
- Red Cross, accountant

3.8

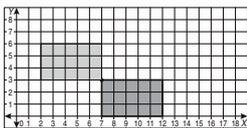
- 22, 29, 23, 17, 21, 10, 25, 14, 18, 26
- 0, 8, 19, 6, 17, 4, 12, 21, 15, 13
- 15, 50, 30, 20, 35, 40, 60, 25, 45, 55
- 2, 6, 5, 8, 11, 10, 7, 9, 3, 4
- 13 944
- 15 962
- 59.76
- 2.6
- $7\frac{1}{3}$
- $\frac{2}{7}$
- \$37.50
- 0.2
- 7 m
- 25
- 900
- 9
- $\frac{1}{2}$
- 42, 44, 45, 46, 48
- 30, 18
- $4e, e$
- 16
- 30
-
- 2.5 h
- 125 mm
- 56 cm^3
- regular octahedron
-
- B
- $\frac{1}{4}$
- 9 m^2
- 12
- 80

4.5

- 61, 14, 23, 22, 15, 29, 20, 8, 66, 27
- 11, 78, 5, 46, 17, 2, 64, 73, 10, 39
- 27, 108, 72, 54, 99, 63, 90, 81, 36, 45
- 6, 8, 3, 10, 12, 5, 4, 11, 7, 9
- 51 264
- 18 984
- 67.4
- 0.24
- $\frac{1}{3}$
- $\frac{3}{4}$
- \$30

Decimal	Fraction	Percentage
0.1	$\frac{1}{10}$	10%

- 3
- 4 : 1
- 1
- 32
- 61, 127
- 5, 7
- 6, -4
- B
- 49
- $x = 7$
- school
- 6 h 15 min
- 6 cm
- 19 sq. units
- 75°



Stem	Leaf
0	2 2 4 8
1	0 3 5 6 8 9

- $\frac{4}{7}$
- 12
- 19
- 128

4.6

- 28, 33, 15, 82, 21, 14, 70, 26, 49, 97
- 9, 14, 23, 2, 8, 71, 76, 5, 7, 20
- 25, 20, 40, 45, 30, 60, 15, 35, 55, 50
- 5, 4, 11, 7, 6, 10, 8, 3, 2, 9
- 76 801
- 34 620
- 2.95
- 0.10
- $\frac{1}{2}$
- $\frac{9}{32}$
- \$225

Decimal	Fraction	Percentage
0.9	$\frac{9}{10}$	90%

- 5
- 5 : 3
- 64
- 2
- 1, 225
- 2, 3
- 4, -7
- A
- 27
- $b = 9$
- A Stopped for lunch

B Driving on a dirt road

C Driving on a freeway
- 9 h 30 min
- 22 mm
- 40 sq. units
- 80°
-
- 81
- $\frac{3}{4}$
- 5 (5, 7, 8, 9, 10)
- Brazil vs Serbia
- 7

4.7

- 18, 61, 13, 26, 39, 52, 15, 24, 70, 17
- 6, 88, 11, 3, 44, 10, 52, 5, 7, 19
- 88, 96, 40, 80, 56, 72, 24, 48, 64, 32
- 4, 7, 3, 8, 11, 12, 10, 6, 5, 9
- 59 210
- 57 418
- 8.96
- 0.27
- $1\frac{2}{15}$
- $1\frac{1}{5}$
- \$32

Decimal	Fraction	Percentage
0.15	$\frac{15}{100} = \frac{3}{20}$	15%

- 7
- 42 : 13
- 81
- 21
- 184, -20, 630
- 2, 3, 5
- 5, 0
- B
- 9
- $m = 8$
- B
- 5 h 50 min
- 65 mm
- 25.5 sq. units
- 120°
-
- 50
- $\frac{2}{9}$
- half full
- 2100
- TURKEY = 104 375

4.8

- 21, 23, 26, 39, 84, 37, 50, 88, 22, 15
- 15, 19, 13, 36, 2, 24, 11, 0, 17, 8
- 36, 96, 132, 84, 120, 144, 108, 48, 72, 60
- 4, 11, 8, 5, 7, 3, 9, 6, 12, 10
- 72 233
- 155 511
- 50.93
- 0.36
- $\frac{1}{4}$
- $1\frac{3}{5}$
- \$4800

Decimal	Fraction	Percentage
0.6	$\frac{6}{10} = \frac{3}{5}$	60%

- 6
- 10 : 11
- 216
- 100
- 12, 17, 100
- 2, 3, 7
- 3, -7
- C
- 38
- $v = 14$
- C
- 13 h 25 min
- 23 mm
- 550 mm²
- 63°
-
- 8th Feb 2009
- $\frac{5}{6}$
- 9
- 28%
- $95 = 9^2 + 3^2 + 2^2 + 1^2$
 or $7^2 + 6^2 + 3^2 + 1^2$
 or $6^2 + 5^2 + 5^2 + 3^2$

MATHS MATE



Teacher Resource



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A Teacher's Guide to approaching
PROBLEM SOLVING

Dear Educator

The following Problem Solving Hints & Solutions have been designed to support users of the Maths Mate Program.

The Maths Mate problem solving questions at each level have proved challenging for many.

Within these Hints & Solutions only one or two alternative strategies have been presented to show how the problem may be solved. Often many other approaches are both practical and possible; after all, "the human race has not really started to 'think'." - Edward De Bono

Outlined on this page is a general problem solving approach that may help you to develop the problem solving skills of your students.

Inevitably, students are more likely to be successful if they:

- *have the courage to try,*
- *can find a place to start and*
- *have approach options to choose from.*

Best wishes

The Maths Mate Team

FIRST:

- * Accept the challenge.
- * Read the problem.
- * Read the problem out loud.

THEN:

- * Find out the meaning of any unknown terms.
- * Highlight the essential truths.
- * Restate the problem in your own words.
- * Break the problem up into parts.

BE SURE ABOUT:

- * What you know from the problem. (Given)
- * What you need to find out. (Goal)

CHOOSE YOUR SOLUTION STRATEGY/STRATEGIES:

1. Write a numerical/algebraic equation deciding which operations to use, given the word statements.
2. Look for a pattern then make and test generalisations/conjectures that describe the relationship between variables.
3. Draw a diagram: sketch
table
graph
number line

OR Make a model.
4. Apply standard techniques or models.
e.g. Pythagoras' Theorem
5. Simplify the problem and work on a reduced version. Extrapolate back to the original problem.
6. Be systematic. Make a list. Progress step by step.
7. Work backwards if you have the answer.
8. Use trial and error. Estimate, check against the facts and then refine your estimation.

WHERE TO START:

- * Start: with what is known
with an odd or distinctive feature
with the smallest
with the easiest.

FINALLY:

- * Double check your answer against the original statements. Does your answer satisfy all the conditions of the problem?

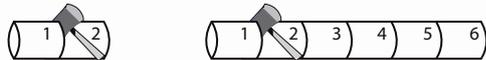
PRESENTATION:

- * Choose suitable modes of communication to present and explain your outcomes and results.

1.1

31. Hint: Draw a diagram!

Solution: One cut is necessary to cut a log into two pieces. Five cuts are necessary to cut a log into six pieces. The time required is 5 times greater than 5 minutes: $5 \times 5 = 25$ min
It takes June **25** minutes to cut a log into six pieces.



32. Hint: Make a model. Use trial and error.

Solution: A possible solution is:

$$\begin{aligned} \text{|||} \rightarrow \text{||} = \text{|} \vee &\Rightarrow \text{|||} \rightarrow \text{||} = \text{|} \vee \\ &\Rightarrow \text{||} + \text{||} = \text{|} \vee \quad 2 + 2 = 4 \end{aligned}$$

The other solutions are:

$$\begin{aligned} \text{|||} \rightarrow \text{||} = \text{|} \vee &\Rightarrow \text{|||} \rightarrow \text{|} = \text{|} \vee \\ &\Rightarrow \text{|||} + \text{|} = \text{|} \vee \quad 3 + 1 = 4 \end{aligned}$$

$$\begin{aligned} \text{|||} \rightarrow \text{||} = \text{|} \vee &\Rightarrow \text{|||} \rightarrow \text{||} = \text{|} \vee \\ &\Rightarrow \text{|||} + \text{||} = \text{|} \vee \quad 3 + 2 = 5 \end{aligned}$$

33. Hint: Find the total score for all 12 exams.

Solution: The total score for all 12 exams is
 $12 \times 95 = 1140$

11 students must get the maximum mark for the remaining student to get the minimum mark.

$$11 \times 100 = 1100$$

Consider the remaining score: $1140 - 1100 = 40$

The minimum mark a student could have scored is **40**.

1.2

31. Hint: The numbers will be close to a half of 257.

Solution: If $257 \div 2 = 128.5$ then try 128 and 129.

$$128 + 129 = 257$$

The two consecutive numbers that add to 257 are

128 and **129**.

32. Hint: Find common multiples of 5 and 8.

Solution: Common multiples of 5 and 8 in ascending order are: 40, 80, 120, 160, etc.

If the number leaves a remainder of 1 when divided by 5 or 8, then add 1 to each of these common multiples:

41, 81, 121, 161, etc.

The lowest positive integer in this list is **41**.

33. Hint: Find the sum of the first 4 and the last 3 numbers.

Solution: If the average of the first four numbers is 15

then the sum of the first four numbers must be

$$15 + 15 + 15 + 15 = 60$$

If the average of the last three numbers is 8

then the sum of the last three numbers must be

$$8 + 8 + 8 = 24$$

The sum of all 7 numbers is $60 + 24 = 84$

The average of all 7 numbers is $84 \div 7 = 12$

1.3

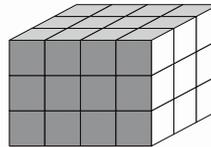
31. Hint: Consider the properties of even numbers. Make an organised list ordering the digits from largest to smallest.

Solution: To be even, the numbers must end in 4 or 6. The largest possibilities for each ending are 76534 and 75436.

The largest number is 76534 and the hundreds digit is **5**.

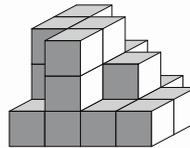
32. Hint: First consider the number of cubes in a completed layer. Then count the cubes in each layer by subtracting the missing cubes from the total.

Solution:



In an array of $4 \times 3 \times 3$ cubes each complete layer would have:

$$4 \times 3 = 12 \text{ cubes}$$



Taking the layers one by one, this incomplete array has:

$$\text{base layer} \quad 12 - 1 = 11 \text{ cubes}$$

$$\text{2nd layer} \quad 12 - 6 = 6 \text{ cubes}$$

$$\text{3rd layer} \quad 12 - 8 = 4 \text{ cubes}$$

$$\text{total} \quad \quad \quad = 21 \text{ cubes}$$

21 cubes remain in the diagram.

33. Hint: List the prime numbers less than 24.

Solution: The prime numbers less than 24 are:

2, 3, 5, 7, 11, 13, 17, 19 and 23

$$2 + 22 = 24 \quad 22 \text{ is not a prime number}$$

$$3 + 21 = 24 \quad 21 \text{ is not a prime number}$$

$$5 + 19 = 24$$

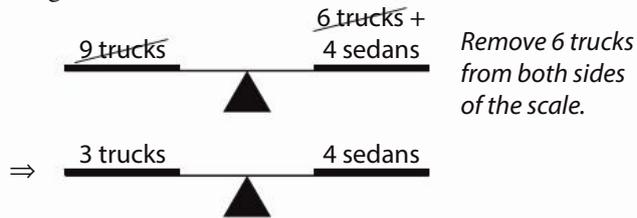
$$7 + 17 = 24$$

$$11 + 13 = 24$$

24 can be written as the sum of two different prime numbers in **3** ways.

31. **Hint:** Express the weight of a sedan in terms of the weight of a truck.

Solution: If nine trucks weigh as much as six trucks and four sedans, it implies that three trucks are equal in weight to four sedans.



If four sedans weigh as much as three trucks, then one sedan weighs four times less than three trucks.

The weight of one sedan is $\frac{3}{4}$ of the weight of one truck.

32. **Hint:** Calculate the cost of Barbie's calls according to each plan.

Solution: Barbie makes 20 calls per week.

Smart Talk Phone Plans

Plan A - \$4.00 per week plus 30¢ per call

Plan B - \$1.60 per week plus 40¢ per call

Plan C - \$0 per week plus 60¢ per call

Plan A: $\$4 + 20 \times \$0.30 = \$4 + \$6 = \$10$

Plan B: $\$1.60 + 20 \times \$0.40 = \$1.60 + \$8 = \$9.60$

Plan C: $\$0 + 20 \times \$0.60 = \$12$

Plan B is the cheapest plan for Barbie.

33. **Hint:** Find the average number then consider the odd numbers either side of this number.

Solution: Find the average

$$80 \div 4 = 20$$

If 20 is the middle value and an even number, then there must be 2 odd numbers greater than 20 and 2 odd numbers less than 20.

Check:

$$17 + 19 + 21 + 23 = 80$$

The largest of the four consecutive odd numbers that add to 80 is **23**.

1.8

31. **Hint:** In order to have the greatest difference, you need to subtract the smallest number from the biggest number.

Solution: The biggest three-digit number you can make with the digits from 1 to 5 is 543. The remaining digits are 1 and 2. The smallest possible number using these digits is 12.

The difference is: $543 - 12 = 531$

The three-digit number and the two-digit number that have the greatest difference are respectively **543** and **12**.

32. **Hint:** Find a row and column that give 4 of the 5 numbers and you then know that the 5th number must be at their intersection. OR Use trial and error.

Solution: Start by considering the 1st row and the 3rd column. The number 3 must be at the intersection at the top of the column.

1	2	3		
				1
		4		
2		5		
	5			4

Next consider the 2nd row and the 3rd column. The number 2 must be at the intersection.

1	2	3		
		2		1
		4		
2		5		
	5	1		4

1 must go here

Continue in this way until the numbers are placed as shown:

1	2	3	4	5
4	3	2	5	1
5	1	4	3	2
2	4	5	1	3
3	5	1	2	4

And 3 comes next

33. **Hint:** Use a process of elimination.
Solution:



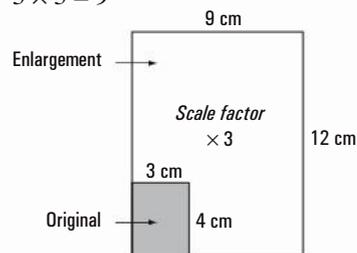
Using the fact that one clock is 20 minutes fast, by elimination it can not be Clock A at 8:00 because then neither of the other clocks could be slow. Clock C at 8:20 is not a possibility of being 20 minutes fast, because then Clock A would be on time and there is no slower clock. So Clock B at 8:50 must be 20 minutes fast. The time is **8:30**.

2.1

31. **Hint:** Draw and label a diagram.

Solution: The length of the original has to be enlarged by a factor of 3 to produce a length of 12 cm, so the width must also be enlarged by a factor of 3.

$$3 \times 3 = 9$$



The enlargement would be **9** cm wide.

2.1 (cont.)

32. **Hint:** Find all pairs of digits whose product is 24. Make an organised list.

Solution: The pairs of digits whose product is 24 are:
 3×8
 8×3
 4×6
 6×4

The lucky dates can be:

3/8/2024 4/6/2024
 8/3/2024 6/4/2024

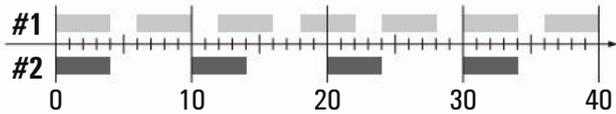
There are **4** lucky dates in 2024.

33. **Hint:** Consider the time in seconds of the ON/OFF cycles for both neon signs. Draw a diagram. OR Calculate the Lowest Common Multiple (LCM) of these time cycles.

Solution:

Neon	ON	OFF	Cycle
#1	4 s	2 s	6 s
#2	4 s	6 s	10 s

Cycle starts again



Neon #1 has a 6 seconds ON/OFF cycle.

Neon #2 has a 10 seconds ON/OFF cycle.

The LCM of 6 and 10 is 30. The neon signs start at the same time every 30 seconds or twice a minute. The neon signs start their cycles together **2** times per minute.

2.2

31. **Hint:** Use trial and error to find two numbers that add to 236 and have a difference of 8. A table format may help.

Solution: Trials should consider that the sum of their ages is 236.

Trials	Jeanne Louise Calment	Mitoyo Kawate	Difference	Result
1	120	116	4	✗
2	121	115	6	✗
3	122	114	8	✓

Mitoyo Kawate, being the youngest, was 114 years old and Jeanne Louise Calment was **122** years old.

32. **Hint:** Draw a diagram.

Solution: What is given can be represented as:

+ =

2 lemons 7 tomatoes 1 cabbage

but we can replace the two lemons with a tomato

=

2 lemons 1 tomato

Substituting the second line into the first line:

+ =

1 tomato 7 tomatoes 1 cabbage

You need **8** tomatoes to balance one cabbage.

2.1 - 2.3

33. **Hint:** Start with the row, column or diagonal that is complete and determine its sum. Then work with the lines that have only one unknown.

Solution: Start with the third column:

$$1 + 8 + 10 + 15 = 34$$

Choose the main diagonal:

$$7 + ? + 10 + 4 = 34$$

$$? = 13$$

Then choose the second diagonal:

$$9 + 3 + 8 + ? = 34$$

$$? = 14$$

Continue in this way until you place the numbers as shown:

7	12	1	14
2	13	8	11
16	3	10	5
9	6	15	4

2.3

31. **Hint:** Use trial and error. Remember order of operation rules.

$$\text{Solution: } 5 \square 8 - 20 \square 5 = 9$$

Note that $8 - 20 = -12$ and the answer is not a negative number. This hints at the second operation being either a \times or a \div and therefore being completed first.

Consider that the second operation is \times . In this case the result of 20×5 is 100 which is quite large given the 9 answer. If however the second operation was \div then the result of $20 \div 5$ is 4 which seems more likely.

$$5 \square 8 - 20 \div 5 = 9$$

Ask: "What operation links 5 and 8 and then, when you subtract 4, gives 9?"

Answer: "Addition"

$$\text{In fact } 5 + 8 - 20 \div 5 = 9$$

$$\text{checking } 5 + 8 - 4 = 9$$

$$13 - 4 = 9 \text{ (true)}$$

The missing operations are addition and division:

$$5 \boxed{+} 8 - 20 \boxed{\div} 5 = 9$$

32. **Hint:** Double the number of bacteria step by step.

Solution: The bacteria doubles 12 times because there are 12 fifteen-minute intervals in 3 hours.

So, $10 \rightarrow 20 \rightarrow 40 \rightarrow 80 \rightarrow 160 \rightarrow 320 \rightarrow 640 \rightarrow 1280 \rightarrow 2560 \rightarrow 5120 \rightarrow 10240 \rightarrow 20480 \rightarrow 40960$ or 10×2^{12}

If 10 bacteria are left to multiply for 3 hours then you will end up with **40960** bacteria.

33. **Hint:** Make an organised list. Consider the number of missed hits.

Solution: A total of 6 can be scored as:



6 + miss + miss	1 + 1 + 4
double 3 + miss + miss	1 + 1 + double 2
1 + 5 + miss	1 + 2 + 3
2 + 4 + miss	1 + double 1 + 3
3 + 3 + miss	2 + 2 + 2
double 1 + 4 + miss	double 1 + 2 + 2
double 2 + 2 + miss	double 1 + double 1 + 2
double 1 + double 2 + miss	double 1 + double 1 + double 1

There are **16** ways of scoring 6 using 3 darts.

31. **Hint:** List all possible combinations of 3 colours, without repeating any colour. The order in each combination must be considered.

Solution: The combinations of red, blue and yellow are:
RBY, RYB
BRY, BYR
YBR, YRB

There are only **6** possible flags using 3 different stripes.

32. **Hint:** Use trial and error. Write all the pairs of numbers with a product of 32.

Solution: The numbers whose product is 32 are:

1 and 32
2 and 16
4 and 8

Only 4 and 8 have a sum of 12.

The two positive numbers with a sum of 12 and a product of 32 are **4** and **8**.

33. **Hint:** List all possible sets of three digits that add to 20. Use trial and error.

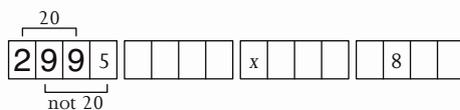
Solution: Triplets containing:

1 \Rightarrow none
2 \Rightarrow 2,9,9 ($2 + 9 + 9 = 20$)
3 \Rightarrow 3,8,9 ($3 + 8 + 9 = 20$)
4 \Rightarrow 4,7,9 ($4 + 7 + 9 = 20$)
4,8,8 ($4 + 8 + 8 = 20$)
5 \Rightarrow 5,6,9 ($5 + 6 + 9 = 20$)
5,7,8 ($5 + 7 + 8 = 20$)
6 \Rightarrow 6,6,8 ($6 + 6 + 8 = 20$)
6,7,7 ($6 + 7 + 7 = 20$)

8 triplets

Note that the order can be changed and the triplets will still add to 20.

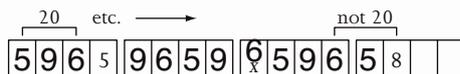
Try 2,9,9:



Any triplet that does not contain a 5 cannot work once we reach the 5. There are two triplets that contain a 5:

5,6,9 and 5,7,8

Try 5,6,9:



Once you get to the 8 there is no way you can keep the '3 consecutive numbers adding to 20' pattern going. Therefore the triplet needs to have both the 5 and the 8.

Try 5,7,8 in the most suitable order:



The value of x is **7**.

31. **Hint:** Find common multiples of 2 and 5.

Solution: Common multiples of 2 and 5 in ascending order are: 10, 20, 30, 40, 50, 60, etc.

If Isabelle arranges her cards by 2's and 5's, she is always 1 card short.

Subtract 1 from each of the common multiples:

9, 19, 29, 39, 49, 59, etc.

The smallest number of cards Isabelle can have is the smallest number in this list that is divisible by 7.

The least number of cards she could have had is **49**.

OR

Think about what the hints tell you:

By 2's and 1 short \Rightarrow odd number

By 5's and 1 short \Rightarrow ends in 9 or 4 (but 4 not odd)

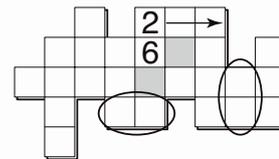
By 7's therefore a multiple of 7 that ends in 9.

Counting 7, 14, 21, 28, 35, 42, 49.....

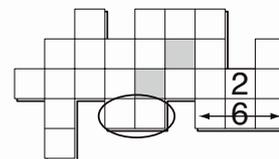
The least number of cards she could have had is **49**.

32. **Hint:** Establish the position of the two-digit numbers. Work systematically.

Solution: 26 cannot be placed as shown, because 2 cannot be the first digit of any of the three-digit numbers.

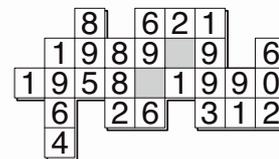


26 cannot be placed in the next option, because 6 is not the middle digit of any of the three-digit numbers.



Therefore 26 must be placed in the remaining two-digit position.

Fill in the remaining numbers systematically.



33. **Hint:** Consider the divisibility test for 25.

Solution:

If a number is divisible by 25, its last two digits are: 00, 25, 50 or 75.

The options of 00 and 50 are not possible, because of the zeros at the ends.

Therefore the palindromes are of the form

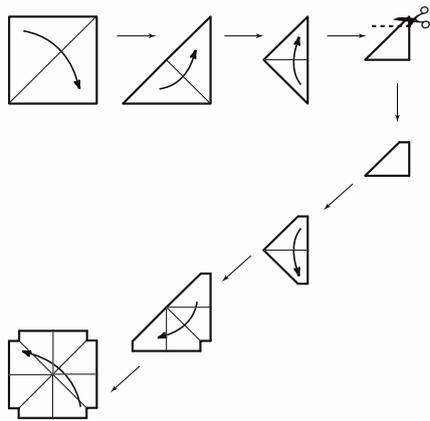
$52x25$ or $57x75$,

where x is any digit from 0 to 9.

There are **20** such numbers.

31. **Hint:** Make a model. OR Work backwards as shown below.

Solution:



32. **Hint:** Find the equivalent of one British pound to one Australian dollar, by expressing both in US dollars.

Solution: Let £ represent the British pound.

We know that:

$$£1.00 = \text{US}\$1.40 \text{ and}$$

$$\text{AU}\$1.00 = \text{US}\$0.70$$

$$\begin{aligned} \text{The ratio becomes: } & \quad \text{£} : \text{AU\$} \\ & = 1.40 : 0.70 \\ & = 2 : 1 \end{aligned}$$

So one British pound is worth AU\$2.00.

33. **Hint:** What fraction of the lake will be covered after one more year?

Solution: The water lilies double every year. If after 10 years they cover a quarter of the lake, then after 11 years the water lilies will cover one half of the lake and after 12 years they will cover the whole lake.

So at 10 years it will be 2 more years before the water lilies cover the entire lake.

3.1

31. **Hint:** Work backwards and do the opposite. Draw a diagram.

Solution: The result was 10 so start there.

$$\square \xrightarrow{\times 4} \square \xrightarrow{- 6} \square \xrightarrow{\div 5} \boxed{10}$$

If at the end you divided by 5, then do the opposite and multiply by 5.

$$10 \times 5 = 50$$

Continue in this way. If you subtract 6 then add 6.

$$50 + 6 = 56$$

If you multiplied by 4 then divide by 4.

$$56 \div 4 = 14$$

Double check 14 as your result by working forwards.

$$14 \times 4 = 56$$

$$56 - 6 = 50$$

$$50 \div 5 = 10 \text{ (true)}$$

$$\boxed{14} \xrightarrow{\times 4} \boxed{56} \xrightarrow{- 6} \boxed{50} \xrightarrow{\div 5} \boxed{10}$$

So the original number is 14.

32. **Hint:** List the odd, one-digit numbers. Make an organised list of all possible sums.

Solution: The odd digits are 1, 3, 5, 7 and 9.

The possible sums are:

$$1 + 1 = 2 \quad 3 + 3 = 6 \quad 5 + 5 = 10 \quad 7 + 7 = 14 \quad 9 + 9 = 18$$

$$1 + 3 = 4 \quad 3 + 5 = 8 \quad 5 + 7 = 12 \quad 7 + 9 = 16$$

$$1 + 5 = 6 \quad 3 + 7 = 10 \quad 5 + 9 = 14$$

$$1 + 7 = 8 \quad 3 + 9 = 12$$

$$1 + 9 = 10$$

The totals are:

2, 4, 6, 8, 10, 12, 14, 16 and 18

There are 9 numbers equal to the sum of two odd, one-digit numbers.

33. **Hint:** Use trial and error.

Solution: Start your trial with the number 20 and continue until you find a perfect number:

Trial #	Factors (excluding the number itself)	Factor Sum
20	1, 2, 4, 5, 10	22
21	1, 3, 7	11
22	1, 2, 11	14
23	1	1
24	1, 2, 3, 4, 6, 8, 12	36
25	1, 5	6
26	1, 2, 13	16
27	1, 3, 9	13
28	1, 2, 4, 7, 14	28
29	1	1
30	1, 2, 3, 5, 6, 10, 15	42

The only perfect number between 20 and 30 is 28.

3.2

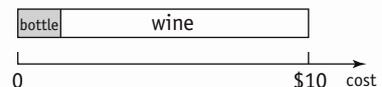
31. **Hint:** Each number must be close to one fourth of 54.

Solution: Because $54 \div 4 = 13.5$, the two middle numbers in the sequence must be 13 and 14.

So, four consecutive numbers that add to 54 are 12, 13, 14 and 15.

32. **Hint:** Draw a diagram. Use trial and error.

Solution:



The wine costs \$9 more than the bottle, so you require two numbers that have a difference of 9 but add to 10. The bottle must be worth somewhere between 0 cents and \$1. By trial and error we find the wine is worth \$9.50 and the bottle is worth 50¢ or \$0.50

33. **Hint:** What would the doctor, nurse and two babies weigh?

Solution: The doctor and the baby weigh 78 kg.

The nurse and the baby weigh 69 kg.

It follows then that the doctor, the nurse and two babies would weigh $78 + 69 = 147$ kg.

Comparing this to the doctor, the nurse and one baby weighing 142 kg, you can deduce that the baby weighs the difference.

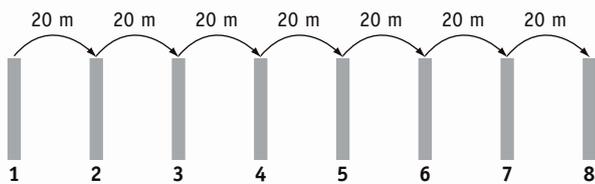
$$147 - 142 = 5 \text{ kg}$$

The weight of the baby is 5 kg.

3.3

31. **Hint:** Draw a diagram.

Solution:



$$7 \times 20 \text{ m} = 140 \text{ m}$$

There are **140 m** between the first and last post.

32. **Hint:** First consider the pairs of numbers that cannot be on adjacent faces. Then list all the eight triplets of numbers situated on faces that meet at any vertex.

OR Make a model of the cube. Copy, cut out and fold the net.

Solution: There are six faces in a cube, so three pairs of numbers are on opposite faces. These numbers cannot be on adjacent faces, and therefore on the three faces meeting at a vertex: (5,10), (6,7) and (8,9).

There are 8 vertices on a cube.

The 3 numbers at each of these vertices are:

$$5 \times 6 \times 8 = 240$$

$$5 \times 6 \times 9 = 270$$

$$5 \times 7 \times 8 = 280$$

$$5 \times 7 \times 9 = 315$$

$$6 \times 8 \times 10 = 480$$

$$6 \times 9 \times 10 = 540$$

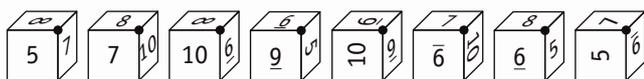
$$7 \times 8 \times 10 = 560$$

$$7 \times 9 \times 10 = 630$$

The smallest product of these triplets is $5 \times 6 \times 8 = \mathbf{240}$

OR

Looking at the model of the cube, rotate it and draw all the possible views with triplets of numbers situated on faces that meet at a vertex:



The smallest product of these triplets is $5 \times 6 \times 8 = \mathbf{240}$

33. **Hint:** Determine how many flats are painted per year.

Break the problem into time sections.

Solution: There are 11 flats painted each year.

After August 2020 there will be 3 more flats to be painted from September to November.

8 more years would see 88 flats painted.

$$3 + 88 = 91 \text{ flats}$$

$$2020 + 8 \text{ years} = 2028$$

9 more flats need to be painted.

$$91 + 9 = 100 \text{ flats}$$

The 9th month is September.

My flat will be next painted in **September 2029**.

3.4



3.3 - 3.4

31. **Hint:** Calculate the total area of rectangle ABCD. Break the shaded area up into parts.

Solution: The total area of rectangle ABCD is:

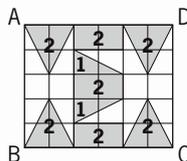
$$6 \times 5 = 30 \text{ sq. units.}$$

The area of the triangle in the top left corner is 2 sq. units.



Add all the shaded regions of the rectangle ABCD:

$$2 + 2 + 2 + 2 + 2 + 2 + 2 + 1 + 1 = 16$$



The shaded area represents $\frac{16}{30} = \frac{8}{15}$ of the total area.

The fraction of rectangle ABCD that is shaded is $\frac{8}{15}$.

32. **Hint:** Calculate the shop price and then calculate the sale price.

Solution: Factory price = \$200

The shop price is the factory price plus 60% of the factory price.

$$\text{Shop price} = \$200 + \frac{60}{100} \times \frac{200}{1}$$

$$= \$200 + \$120$$

$$= \$320$$

The shop sale price is the shop price minus 25% of the shop price.

$$\text{Shop sale price} = \$320 - \frac{25}{100} \times \frac{320}{1}$$

$$= \$320 - \frac{25^5}{10^2} \times \frac{32}{1}$$

$$= \$320 - \frac{5}{2^1} \times \frac{32^{16}}{1}$$

$$= \$320 - \$80$$

$$= \$240$$

The shop bought the racquet from the factory at \$200 and sold it, on sale, for \$240. The shop made \$40 profit.

33. **Hint:** Use trial and error to check which of 7, 5 or 1 is the bull shown in guess 1.

Solution:

Guess	Secret Number	Cows	Bulls
1st	7 5 1	1	1
2nd	5 7 4	1	1
3rd	3 1 7	1	1

Assume 7 is the bull from guess 1, then the solution is either

$$7_5 \text{ or } 71_$$

If 7_5 then guess 2 has no bull!

If $71_$ then guess 2 reveals the missing digit is 4.

Guess 3 confirms **714** as the only possible solution for the secret number.

3.5

31. Hint: How much did he make on each transaction?

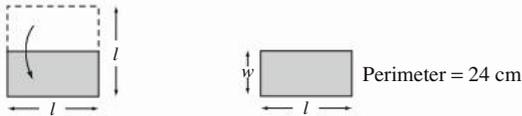
Solution:

Bought	\$7	Bought	\$ 9
Sold	<u>\$8</u>	Sold	<u>\$10</u>
Profit	<u>\$1</u>	Profit	<u>\$ 1</u>

The dealer made **\$2** profit on his transactions.

32. Hint: Make a model or draw a diagram. Use trial and error.

Solution: After folding the square, the resulting rectangle will have a width half its length and a perimeter of 24 cm.



The possible dimensions of a rectangle whose perimeter is 24 cm are:

(11,1) (10,2) (9,3) **(8,4)** (7,5) (6,6)

Only $l = 8$ cm and $w = 4$ cm make the width half the length.

Using $A = l^2$

$A = 8 \text{ cm} \times 8 \text{ cm}$

$A = 64 \text{ cm}^2$

The area of the original square was **64 cm²**.

33. Hint: Begin with the top line. Use trial and error.

Solution: The first 2 digits of the top row when divided must produce 3 for the whole line to equal 2. The possible equations are:

$6 \div 2 - 1 = 2$ or $9 \div 3 - 1 = 2$

Trial:

6	÷	2	-	1	2
+		+		×	
	+		-		9
×		+		÷	
	×		÷		20
44		17		2	

6 is impossible in the vertical equation, because the only combinations that work here are:

$2 + 6 \times 7 = 44$, $4 + 5 \times 8 = 44$, $8 + 4 \times 9 = 44$,

$9 + 5 \times 7 = 44$

So 9 belongs in the top left corner and rows 2 and 3 begin with either a 5 or a 7.

Column 2 must be $3 + 6 + 8 = 17$ or $3 + 8 + 6 = 17$

Column 3 must be $1 \times 4 \div 2 = 2$

This leads to the solution below:

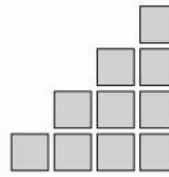
9	÷	3	-	1	2
+		+		×	
7	+	6	-	4	9
×		+		÷	
5	×	8	÷	2	20
44		17		2	

3.6

3.5 - 3.6

31. Hint: Establish the number of blocks needed for 5, 6 and 7... etc steps high. Look for a pattern.

Solution:



4 steps high
= $1 + 2 + 3 + 4$
= 10 blocks

NUMBER OF STEPS	TOTAL NUMBER OF BLOCKS
1	1
2	$1 + 2 = 3$
3	$3 + 3 = 6$
4	$6 + 4 = 10$
5	$10 + 5 = 15$
6	$15 + 6 = 21$
7	$21 + 7 = 28$
8	$28 + 8 = 36$
9	$36 + 9 = 45$
10	$45 + 10 = 55$

So we can conclude that:

- the fifth step will add 5 blocks to the previous total
- the sixth step will add 6 blocks to the previous total...etc

Continue in this way.

A staircase 10 steps high will require **55** blocks.

32. Hint: Establish the number of matches in each round. OR Consider how many losers are in the competition.

Solution:

first round matches	= 32
second round matches	= 16
third round matches	= 8
fourth round matches	= 4
fifth round matches	= 2
final round match	= 1
Total number of matches	= <u>63</u>

OR

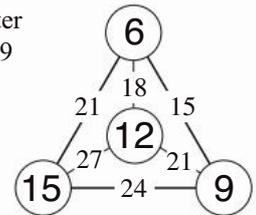
The problem can also be solved by realising that each match has 1 winner and 1 loser. And if there are 64 players and only 1 winner, there must be 63 losers. Since the number of losers equals the number of matches, the number of matches is **63**.

33. Hint: Try any reasonable guess in the top circle and observe your results.

Solution: Whatever you place in the top circle to get 21 and 15 on the sides, your two base circles must have the same difference, which is 6. You therefore require two numbers that have a difference of 6 but add to 24.

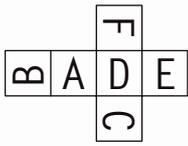
By trial and error we find 9 and 15. The 15 must go on the left where the greater number is required to get 21. The 9 then goes on the right and this leads to a 6 at the top.

The central number must be 12.



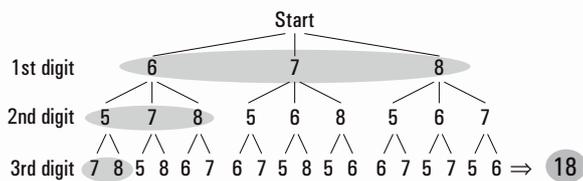
31. **Hint:** Make a model.

Solution: The adjacent faces of base A are B, C, D and E. The only letter that is not the right way up is D.



32. **Hint:** Consider how many numbers can go in each position for 3-digit numbers and then for 4-digit numbers.

Solution: For 3-digit numbers only 6, 7 and 8 can be the first digit in the number but all four digits can be the second and third digits provided they have not already been used in that number.



So 3-digit numbers $\Rightarrow 3 \times 3 \times 2 = 18$ combinations.
 For 4-digit numbers 5, 6, 7 and 8 can be in any order provided they have not already been used in that number.
 4-digit numbers $\Rightarrow 4 \times 3 \times 2 \times 1 = 24$ combinations.
 In total there are $18 + 24 = 42$ combinations
 There are **42** numbers greater than 600 that can be formed with the digits 5, 6, 7 and 8 if no digit is used more than once.

33. **Hint:** Draw a table to help your reasoning.

Solution: From the given information we can immediately put into the table:

Vera ended up working for *Make-A-Wish*.
 Eve was not working for *Meals on Wheels*, therefore Jessie was working for *Meals on Wheels*.
 So Eve was working for *Red Cross*.

Girl	Charity	Job
Vera	<i>Make-A-Wish</i>	
Eve	<i>Red Cross</i>	
Jessie	<i>Meals on Wheels</i>	

We are also given:

Red Cross would not even employ a courier, so Eve is not a courier.
Meals on Wheels is still advertising for an accountant and a courier, so Jessie must be a cleaner.
 Therefore Eve must work as an accountant.

The table can be completed as shown:

Girl	Charity	Job
Vera	<i>Make-A-Wish</i>	courier
Eve	<i>Red Cross</i>	accountant
Jessie	<i>Meals on Wheels</i>	cleaner

Eve is working for **Red Cross**, as an **accountant**.

31. **Hint:** List the dimensions of all possible rectangles with a perimeter of 12 metres. A table format may help.

Solution: The perimeter of the chicken run is 12 metres, so we have to find a length and a width that add to 6 metres and have the largest possible product.

Trial	length	width	perimeter	Area $l \times w$
1	1	5	12	5
2	2	4	12	8
3	3	3	12	9
4	4	2	12	8
5	5	1	12	5

The largest possible area of the chicken run is **9 m²**.

32. **Hint:** How many sides would 26 girls draw?

OR Use trial and error.

Solution: If the 26 students were all girls, they would draw 26 triangles or $26 \times 3 = 78$ sides altogether. Every boy in the class will add one side to the total (squares instead of triangles). We need 14 more sides to reach the total of 92 sides, so there are 14 boys in the class. Therefore there were **12** girls in the class.

OR

Let g = number of girls
 b = number of boys

and s = total number of students.

Trials should consider that $s = g + b = 26$

and that we are looking for 92 sides altogether.

Trials	girls (triangles - 3)		boys (rectangles - 4)		Total		Result
	g	sides	b	sides	s	sides	
1	13	39	13	52	26	91	X
2	12	36	14	56	26	92	✓

There were **12** girls in the classroom.

33. **Hint:** Compare words with similar spelling.

Solution: If $TEN = 35$ then

$ENTREE = TEN + REE = 35 + REE$

If $TEA = 30$ and $TEAR = 55$, then

$TEAR - TEA = 25$ or $R = 25$

If $NEAT = 50$ and $TAN = 40$, then

$NEAT - TAN = 10$ or $E = 10$

So $ENTREE = 35 + REE = 35 + 25 + 10 + 10 = 80$

The total value of $ENTREE$ is **80**.

4.1

31. **Hint:** The multiplication table has the numbers to be multiplied in the first row and the first column. Their products go in the corresponding intersecting spaces. Look for products where 2 of these 3 facts are known.

Solution:

×	3	2		
9	27	45		54
			4	
4				
				21

→

×	3	2		
9	27	45		54
2			4	
4				
				21

→

×	3	2		
9	27	45		54
2			4	
4				
				21

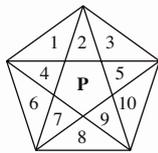
→

×	3	5	2	6
9	27	45	18	54
2	6	10	4	12
4	12	20	8	24
7	21	35	14	42

and so on
→

32. **Hint:** Use a number coded diagram. Tabulate your results.

Solution: Number the pieces inside the diagram as shown. One, two, three or five of these pieces can group to make different triangles. List all possible combinations of triangles.



	1 piece triangles	2 piece triangles	3 piece triangles	5 piece triangles
Piece numbers	1	1+2	1+2+3	2+P+7+8+9
	2	2+3	3+5+10	5+P+4+6+7
	3	3+5	10+9+8	9+P+2+1+4
	4	5+10	8+7+6	7+P+2+3+5
	5	10+9	6+4+1	4+P+9+10+5
	6	9+8	2+P+9	
	7	8+7	5+P+7	
	8	7+6	9+P+4	
	9	6+4	7+P+2	
	10	4+1	4+P+5	
Total	10	10	10	5

There are **35** triangles in the diagram.

33. **Hint:** Make the two numbers as small as possible. Use trial and error.

Solution: Use the smallest digits in the tens column:

$$\begin{array}{r}
 1,3 \\
 \downarrow \downarrow \\
 \square \square \\
 \times \square \square \\
 \hline
 \square \square \square \\
 \square \square \square \\
 \hline
 \square \square \square
 \end{array}$$

There are two combinations to try

$$\begin{array}{r}
 17 \\
 \times 35 \\
 \hline
 85 \\
 510 \\
 \hline
 595
 \end{array}$$

$$\begin{array}{r}
 15 \\
 \times 37 \\
 \hline
 105 \\
 450 \\
 \hline
 555
 \end{array}$$

The combination which makes the smallest possible answer is

$$15 \times 37 = 555$$

4.2

4.1 - 4.2

31. **Hint:** Find the relationship between black and white sheep in any given total.

Solution:



2 out of 5 sheep are white so for every 5 sheep there is always 1 more black sheep than white sheep. We need 8 more black sheep than white sheep, so we need 8 groups of 5 sheep $\Rightarrow 5 \times 8 = 40$
There are **40** sheep in the flock.

32. **Hint:** Make organised lists.

Solution: Let B and G represent the number of boys and girls in the family.

Fact 1	Fact 2
Each of my daughters has as many brothers as sisters. Some possibilities are:	Each of my sons has three times as many sisters as brothers. Some possibilities are:

Gender	Total	Gender	Total
G + (G + B)	(2G, 1B)	B + (3G + B)	(3G, 2B)
G + (2G + 2B)	(3G, 2B)	B + (6G + 2B)	(6G, 3B)
G + (3G + 3B)	(4G, 3B)	B + (9G + 3B)	(9G, 4B)
G + (4G + 4B)	(5G, 4B)	B + (12G + 4B)	(12G, 5B)

There is one option of 3 girls and 2 boys that fits both criteria.

You have **5** children.

33. **Hint:** Assume that the original price of a shirt is \$100 (the same reasoning can be applied for any price). Calculate the discount for each deal. Compare the results.

Solution:

Deal A)

Original price for 2 shirts is \$200

Discount is 25% \Rightarrow

Discounted price for 2 shirts is

$$200 - 0.25 \times 200 =$$

$$= 200 - 50$$

$$= 150$$

Therefore each shirt sells for \$75 each.

Deal B)

Original price for 3 shirts is \$300

Discount is 30% \Rightarrow

Discounted price for 3 shirts is

$$300 - 0.3 \times 300 =$$

$$= 300 - 90$$

$$= 210$$

Therefore each shirt sells for \$70 each.

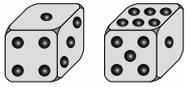
Deal **B** is cheaper per shirt.

4.3

31. **Hint:** Try making a model!

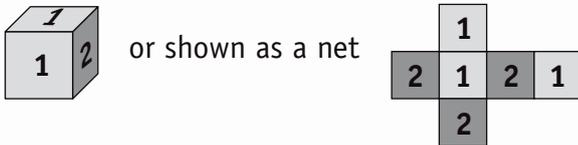
Solution: Only the number 2 is not shown at all. Since 3, 4, 5 and 6 are placed on faces adjacent to 1, 2 must be the number opposite the number 1.

By mentally rotating the first die to match the second, 5 must be the number opposite the number 3.

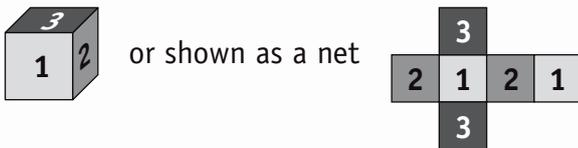


32. **Hint:** Use trial and error.

Solution: Two colours (1 and 2) are not enough to prevent adjacent faces from having the same colour:



Three colours (1, 2 and 3) are enough to prevent adjacent faces from having the same colour:



33. **Hint:** How many lollies can they eat together in 3 hours?

Solution: Kahi can eat 32 lollies in one hour, so she can eat $32 \times 3 = 96$ lollies in 3 hours. Her sister can eat 32 lollies in 3 hours, so together they can eat $96 + 32 = 128$ lollies in 3 hours.

32 lollies represent a quarter of 128.
A quarter of 3 hours is 45 minutes.

It would take both of them together **45 minutes** to eat 32 lollies.

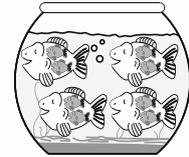
4.4

4.3 - 4.4

31. **Hint:** Use trial and error. Try a table format or draw a diagram.

Solution: We know that all the little fish are gone. We know that the big fish (F) each ate two little fish (f).

Trial	Big Fish (F)	Little Fish (f)	Total Fish
1	1	2	3
2	2	4	6
3	3	6	9
4	4	8	12



If there were 12 fish altogether then 8 little fish must have been eaten.

So if all the little fish (f) are gone then there would be 4 big fish (F) remaining in the fish bowl.

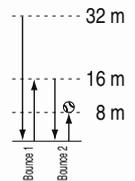
32. **Hint:** Use a table to show bounce number and height reached after the bounce.

Solution:

The height reached by the ball after the first bounce is:

$$32 \div 2 = 16 \text{ m}$$

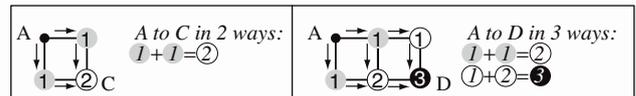
To calculate the height reached after the second bounce you halve this result and so on until you find the height reached by the ball is 0.25 m. Tabulate your results:



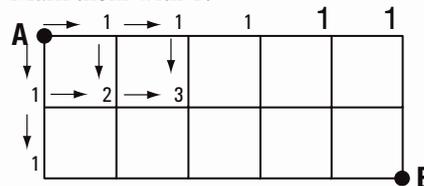
Bounce	1st	2nd	3rd	4th	5th	6th	7th
Height (m)	16	8	4	2	1	0.5	0.25

The ball rebounds to a height of 25 cm after the **7th** bounce.

33. **Hint:** Look for a pattern working one intersection at a time from A. Consider the simpler problems first:

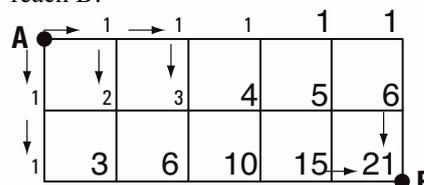


Solution: Working from A consider all the points on the grid that give only one possible path to that intersection. Mark them with 1.



Use this pattern to establish the rule for finding the number of paths from A to any intersection on the grid: 'Add the number of paths from the intersections immediately up and left.'

Apply this rule to every intersection on the grid until you reach B.

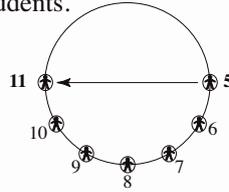


The final addition at intersection B is: $6 + 15 = 21$
Movement from A to B can be done in **21** ways.

4.5

31. Hint: Draw a diagram.

Solution: There are 5 students between the 5th and the 11th students no matter which way you go.
So $5 + 5 = 10$
Then include the 5th and the 11th students.
There are **12** students evenly spaced in the circle.



32. Hint: Use trial and error. A table format may help.

Solution: Start trials with the smallest 2-digit number.

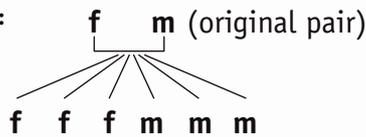
Guess	Sum of its digits	Product of its digits	Trial	Result
10	1	0	$1 + 0 = 1$	X
11	2	1	$2 + 1 = 3$	X
12	3	2	$3 + 2 = 5$	X
13	4	3	$4 + 3 = 7$	X
14	5	4	$5 + 4 = 9$	X
15	6	5	$6 + 5 = 11$	X
16	7	6	$7 + 6 = 13$	X
17	8	7	$8 + 7 = 15$	X
18	9	8	$9 + 8 = 17$	X
19	10	9	$10 + 9 = 19$	✓

The smallest number with this property is **19**.

33. Hint: Draw a family tree diagram.

Solution:

First year:



\Rightarrow 3 female (f) and 3 male (m) cats are born:
 $(3 + 1) + (3 + 1)$
 $= 4 + 4$
 $= 8$

Altogether Angela has now 4 female and 4 male cats.

Second year: Four female cats each gave birth to six kittens, three male and three female.

\Rightarrow 12 female (f) and 12 male (m) cats are born.
 $(12 + 3 + 1) + (12 + 3 + 1)$
 $= 16 + 16$
 $= 32$

Altogether Angela has now 16 female and 16 male cats.

Third year: Sixteen female cats each gave birth to six kittens, three male and three female.

\Rightarrow 48 female (f) and 48 male (m) cats are born.
 $(48 + 12 + 3 + 1) + (48 + 12 + 3 + 1)$
 $= 64 + 64$
 $= 128$

Altogether Angela has now 64 female and 64 male cats, a total of **128** cats.

4.6

4.5 - 4.6

31. Hint: List all the whole numbers up to 10. If possible, match with sums of two different prime numbers.

Solution: The prime numbers to 10 are 2, 3, 5 and 7.

Positive whole numbers	Sum of two different primes
1	_____
2	_____
3	_____
4	_____
5	2 + 3
6	_____
7	5 + 2
8	5 + 3
9	7 + 2
10	7 + 3

\Rightarrow **5**

5 of the first 10 positive whole numbers can be expressed as the sum of two different prime numbers.

32. Hint: Use the goals for and against each team to determine the scores for each of their games.

Solution:

GROUP E TEAMS	MP	W	D	L	GF	GA	Pts
	matches played	wins	draws	losses	goals for	goals against	points
Brazil	2	1	1	0	3	1	4
Switzerland	2	1	1	0	3	2	4
Serbia	2	1	0	1	2	2	3
Costa Rica	2	0	0	2	0	3	0

Round 1:

Serbia won against Costa Rica 1 - 0 (from the clue).

Brazil had a draw with Switzerland.

Based on the goals for (GF) tally and goals against (GA) tally, Serbia must have lost their second round game 1 - 2 and Costa Rica 0 - 2.

Round 2:

Assume that Brazil won against Serbia 2 - 1 and

Switzerland won against Costa Rica 2 - 0

As Brazil's GF = 3, that means the draw with Switzerland was 1 - 1.

This makes Switzerland's GF = 3 and GA = 1, which contradicts the team results table.

The only possible option for round 2 remains:

Brazil won against Costa Rica 2 - 0 and

Switzerland won against Serbia 2 - 1

Therefore Brazil played **Serbia** in their third round game.

33. Hint: List all the different triplets of whole numbers.

Establish the rule:

RULE: In any triangle, any one side must always be smaller than the sum of the other two sides.

Solution: The different triplets formed by the numbers 3, 3, 5, 9, 11 and 13 are:

3,3,5 ~~3,5,9~~ 3,9,11 3,11,13 5,9,11 5,11,13 9,11,13
~~3,3,9~~ ~~3,5,11~~ ~~3,9,13~~ 5,9,13
~~3,3,11~~ ~~3,5,13~~
~~3,3,13~~

Using the rule, impossible triangles have been eliminated. Nick can make **7** different triangles using three of these sticks.

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10



Test 1

Covering worksheets

1.1 - 1.4

Name:

1. [+ Whole Numbers to 10]

	1	5	3	10	7	9	2	6	8	4
+ 1										

2. [- Whole Numbers to 10]

	12	10	8	14	7	5	13	11	6	9
- 4										

3. [× Whole Numbers to 12]

	12	6	3	8	9	11	7	4	10	5
× 5										

4. [÷ Whole Numbers to 12]

	100	50	40	90	20	70	30	80	110	60
÷ 10										

5. [Large Number +,-]

$$\begin{array}{r} 6590 \\ - 2340 \\ \hline \end{array}$$

6. [Large Number ×,÷]

$$\frac{96000}{100} =$$

7. [Decimal +,-]

$$\begin{array}{r} 2.75 \\ + 6.19 \\ \hline \end{array}$$

8. [Decimal ×,÷]

$$\begin{array}{r} 0.8 \\ \times 4 \\ \hline \end{array}$$

9. [Fraction +,-]

$$\frac{3}{10} + \frac{4}{10} =$$

10. [Fraction ×,÷]

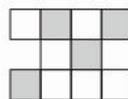
$$\frac{2}{7} \times 3 =$$

11. [Percentages]

Write as a percentage:
37 out of 100.

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



13. [Integers]

Which state has the lowest recorded temperature?

- A) -13°C Tasmania
- B) -11°C Victoria
- C) -23°C NSW

14. [Rates / Ratios]

Simplify the ratio 12 : 16

 :

15. [Indices / Square Roots]

Write the product as a power:

$$9 \times 9 \times 9 \times 9 =$$

16. [Order of Operations]

$$12 + 3 - 8 =$$

17. [Exploring Numbers]

Which number is the largest?

- A) 20543
- B) 20345
- C) 20534

18. [Multiples / Factors / Primes]

List the common multiples of 2 and 5 up to 35.

19. [Number Patterns]

Complete the pattern:

$$4, 9, 14, 19, 24, \quad \square, \quad \square$$

,

20. [Expressions]

Simplify

$$g + g$$

21. [Substitution]

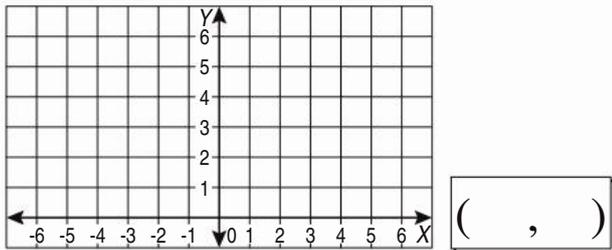
If $d = 7$, find the value of $d + 9$

22. [Equations]

$$\square + 6 = 14$$

23. [Coordinates]

Start at the origin. Move 6 units to the left along the x -axis and then up 3 units. Plot a point. What are the coordinates of the point?



24. [Units of Measurement / Time]

6 hours = minutes

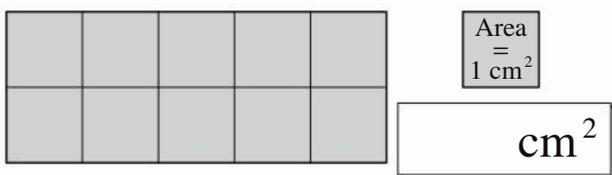
25. [Perimeter]

Use a ruler to find the perimeter of the equilateral triangle in centimetres.



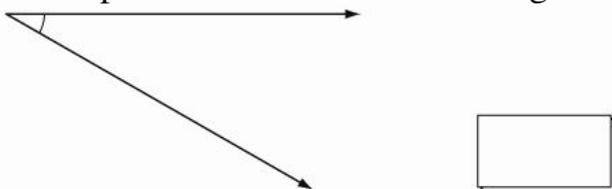
26. [Area / Volume]

Find the area of the rectangle.



27. [Shapes]

Use a protractor to measure this angle.



28. [Location / Transformation]

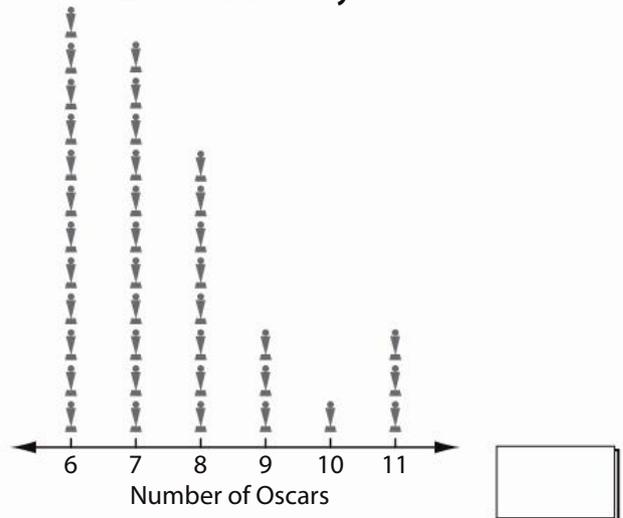
Which of these Italian cities is west of Cremona?



29. [Statistics]

How many films have won nine or more Oscars?

≥6 Oscar wins by film



30. [Probability]

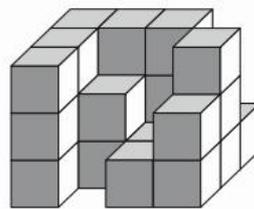
There are 6 toffee, 14 caramel and 8 nut centred chocolates in a box. How many chocolates do you have to pick to make sure you have at least one nut centred chocolate?

31. [Problem Solving 1]

The digits 2, 4, 7, 8 and 9 are arranged to form even, five-digit numbers. What is the tens digit in the largest of these numbers?

32. [Problem Solving 2]

Some cubes have been removed from an array of $4 \times 3 \times 3$. How many cubes remain?



33. [Problem Solving 3]

Each of the digits 1 to 9 appears once in the sum below. Fill in the missing digits.

$$\begin{array}{r} \square 4 2 \\ + \square \square 5 \\ \hline \square \square \square \end{array}$$



Test 1

Covering worksheets

1.1 - 1.4

Name:

1. [+ Whole Numbers to 10]

	8	4	2	7	1	5	10	9	3	6
+ 5										

2. [- Whole Numbers to 10]

	15	11	17	14	16	10	18	12	19	13
- 10										

3. [× Whole Numbers to 12]

	1	5	9	6	2	4	10	7	3	8
× 3										

4. [+ Whole Numbers to 12]

	10	2	6	16	4	12	20	14	8	18
÷ 2										

5. [Large Number +,-]

$$\begin{array}{r} 5807 \\ - 2203 \\ \hline \end{array}$$

10. [Fraction ×,+]

$$\frac{2}{9} \times 4 =$$

16. [Order of Operations]

$$13 - 9 + 4 =$$

6. [Large Number ×,+]

$$\frac{25000}{100} =$$

11. [Percentages]

Write as a percentage:
82 out of 100.

17. [Exploring Numbers]

Which number is the largest?

- A) 18067
- B) 18706
- C) 18670

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



18. [Multiples / Factors / Primes]

List the common multiples of 3 and 4 up to 40.

7. [Decimal +,-]

$$\begin{array}{r} 4.26 \\ + 5.37 \\ \hline \end{array}$$

13. [Integers]

Which continent has the lowest recorded temperature?

- A) -33°C South America
- B) -68°C Asia
- C) -24°C Africa

19. [Number Patterns]

Complete the pattern:

$$5, 11, 17, 23, 29, \quad \square, \quad \square$$

8. [Decimal ×,+]

$$\begin{array}{r} 0.3 \\ \times 9 \\ \hline \end{array}$$

14. [Rates / Ratios]

Simplify the ratio 16 : 24

20. [Expressions]

Simplify
 $e + e$

9. [Fraction +,-]

$$\frac{1}{9} + \frac{4}{9} =$$

15. [Indices / Square Roots]

Write the product as a power:

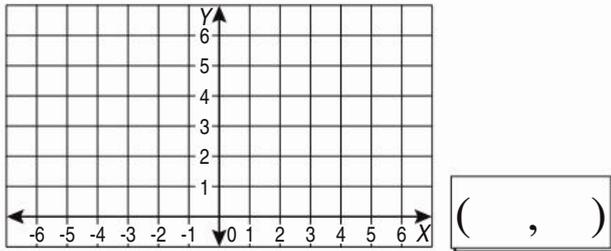
$$8 \times 8 \times 8 \times 8 \times 8 =$$

22. [Equations]

$$8 + \square = 13$$

23. [Coordinates]

Start at the origin. Move 5 units to the right along the x -axis and then up 2 units. Plot a point. What are the coordinates of the point?



24. [Units of Measurement / Time]

8 minutes = seconds

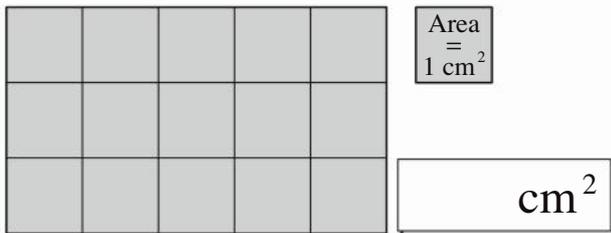
25. [Perimeter]

Use a ruler to find the perimeter of the equilateral triangle in centimetres.



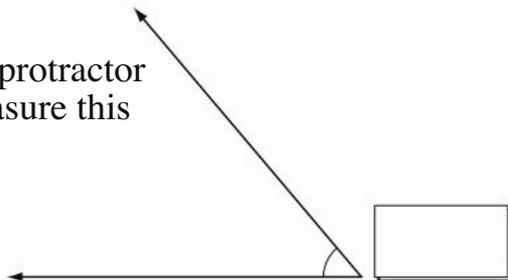
26. [Area / Volume]

Find the area of the rectangle.



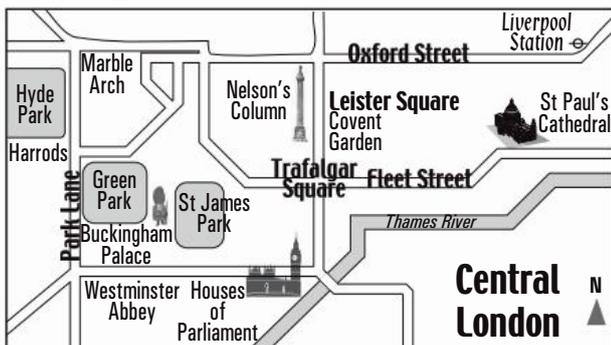
27. [Shapes]

Use a protractor to measure this angle.



28. [Location / Transformation]

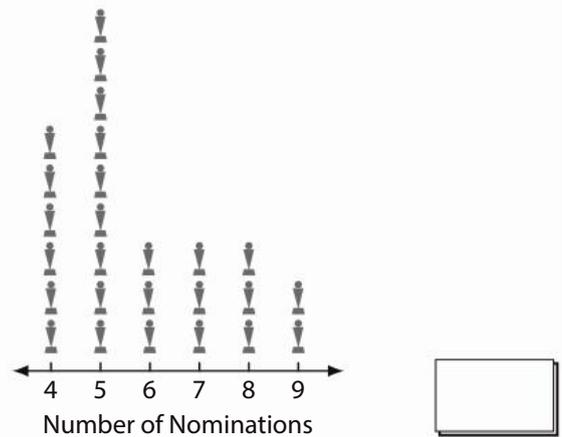
Which park is west of Nelson's Column?



29. [Statistics]

How many actors have received nine nominations for 'best actor'?

≥4 'Best Actor' Nominations



30. [Probability]

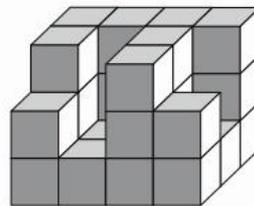
There are 25 blue, 10 red and 15 yellow marbles in a bag. How many marbles do you have to select to make sure you have at least one yellow marble?

31. [Problem Solving 1]

The digits 1, 3, 6, 7 and 9 are arranged to form odd, five-digit numbers. What is the tens digit in the smallest of these numbers?

32. [Problem Solving 2]

Some cubes have been removed from an array of $4 \times 3 \times 3$. How many cubes remain?



33. [Problem Solving 3]

Each of the digits 1 to 9 appears once in the sum below. Fill in the missing digits.

$$\begin{array}{r} \square \ 6 \ 7 \\ + \square \ \square \ 8 \\ \hline \square \ \square \ \square \end{array}$$



Test 2

Covering worksheets

1.5 - 1.8

Name:

1. [+ Whole Numbers to 10]

	12	5	11	9	7	10	3	6	8	4
+ 2										

2. [- Whole Numbers to 10]

	5	4	8	12	13	6	11	7	10	9
- 3										

3. [× Whole Numbers to 12]

	3	9	1	8	4	7	2	6	10	5
× 6										

4. [÷ Whole Numbers to 12]

	11	6	3	7	12	9	10	4	8	5
÷ 1										

5. [Large Number +, -]

$$\begin{array}{r} 3921 \\ + 4038 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$2 \times \frac{3}{4} =$$

16. [Order of Operations]

$$15 - 12 \div 3 =$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 126 \\ \times 1000 \\ \hline \end{array}$$

11. [Percentages]

If 81% of butter is fat, what percentage do the remaining components equal?

17. [Exploring Numbers]

What is the value of the underlined digit in the number 7531?

7. [Decimal +, -]

$$\begin{array}{r} 94.6 \\ - 25.3 \\ \hline \end{array}$$

12. [Decimals / Fractions / Percentages]

Simplify $\frac{4}{14}$

18. [Multiples / Factors / Primes]

What is the lowest common multiple (LCM) of 4 and 6?

8. [Decimal ×, ÷]

$$8.3 \times 100 =$$

13. [Integers]

Arrange in ascending order: 8, -5, -1, 2, 9

19. [Number Patterns]

Complete the pattern:

$$46, 38, 30, 22, \underline{\quad}, \underline{\quad}$$

20. [Expressions]

Simplify $wx - wx + wx + wx$

9. [Fraction +, -]

$$\frac{5}{9} + \frac{8}{9} =$$

14. [Rates / Ratios]

Simplify the ratio

$$30 \text{ m} : 125 \text{ m}$$

 :

21. [Substitution]

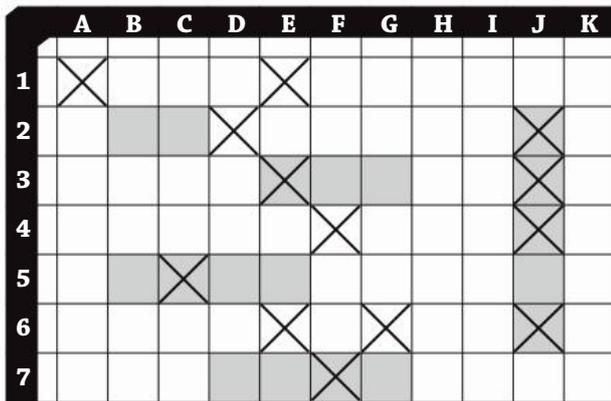
If $g = 7$, find the value of $7g$

22. [Equations]

$$11 - \square = 5$$

23. [Coordinates]

At which grid reference will one more enemy hit completely destroy a battleship?



X Enemy hit
 Battleship

24. [Units of Measurement / Time]

60 cm = mm

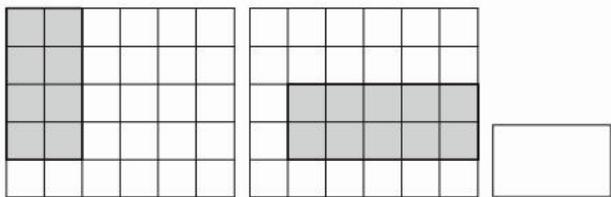
25. [Perimeter]

Use a ruler to find the perimeter of the rectangle in millimetres.



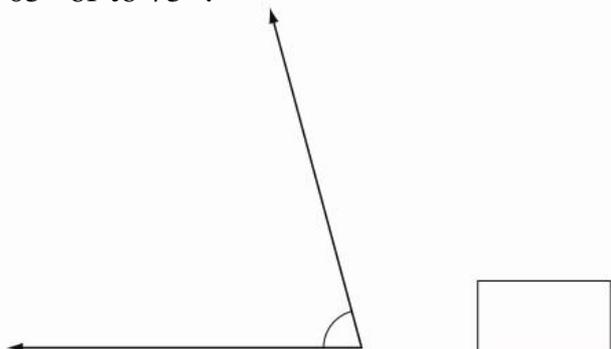
26. [Area / Volume]

Do these rectangles have the same area?



27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 65° or to 75°?



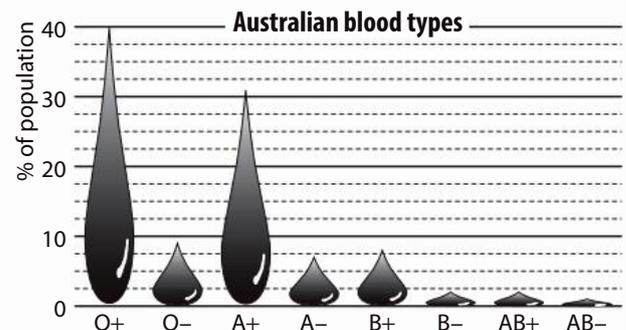
28. [Location / Transformation]

Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



29. [Statistics]

Which blood type accounts for about 7% of the Australian population?



30. [Probability]

'In Auckland snow will fall in the mountains in December.'

Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

31. [Problem Solving 1]

Five lions are equal in weight to two lions and one giraffe. What fraction of the weight of a giraffe is the weight of a lion?

32. [Problem Solving 2]

Complete the addition table.

+		14	9
		21	
14	35		
			15

33. [Problem Solving 3]

The sum of four consecutive odd numbers is 64. What is the largest of these numbers?



Test 2

Covering worksheets

1.5 - 1.8

Name:

1. [+ Whole Numbers to 10]

	2	9	5	8	3	10	4	6	7	1
+ 3										

2. [- Whole Numbers to 10]

	4	3	9	6	2	7	10	8	5	11
- 1										

3. [× Whole Numbers to 12]

	11	5	9	6	10	4	12	7	3	8
× 10										

4. [÷ Whole Numbers to 12]

	40	56	48	80	64	32	24	72	16	88
÷ 8										

5. [Large Number +,-]

$$\begin{array}{r} 5126 \\ + 3450 \\ \hline \end{array}$$

10. [Fraction ×,+]

$$3 \times \frac{1}{6} =$$

16. [Order of Operations]

$$9 + 7 \times 3 =$$

6. [Large Number ×,+]

$$\begin{array}{r} 718 \\ \times 1000 \\ \hline \end{array}$$

11. [Percentages]

If 71% of the cultured sour cream is water, what percentage do the remaining components equal?

17. [Exploring Numbers]

What is the value of the underlined digit in the number 14028?

7. [Decimal +,-]

$$\begin{array}{r} 89.5 \\ - 36.7 \\ \hline \end{array}$$

12. [Decimals / Fractions / Percentages]

Simplify $\frac{6}{16}$

18. [Multiples / Factors / Primes]

What is the lowest common multiple (LCM) of 6 and 9?

7. [Decimal +,-]

$$\begin{array}{r} 89.5 \\ - 36.7 \\ \hline \end{array}$$

13. [Integers]

Arrange in ascending order: 8, -3, 0, -2, 4

19. [Number Patterns]

Complete the pattern:

$$51, 43, 35, 27, \underline{\quad}, \underline{\quad}$$

8. [Decimal ×,+]

$$4.7 \times 100 =$$

14. [Rates / Ratios]

Simplify the ratio

$$24 \text{ m} : 54 \text{ m}$$

20. [Expressions]

Simplify $cd + cd - cd + cd$

9. [Fraction +,-]

$$\frac{5}{7} + \frac{6}{7} =$$

15. [Indices / Square Roots]

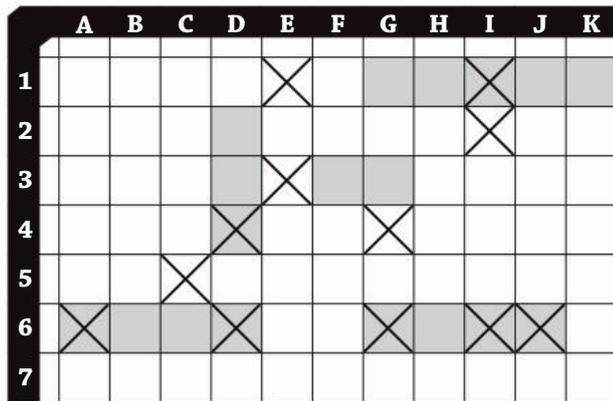
$$7^2 =$$

22. [Equations]

$$14 - \square = 9$$

23. [Coordinates]

At which grid reference will one more enemy hit completely destroy a battleship?



X Enemy hit
 Battleship

24. [Units of Measurement / Time]

9 km = m

25. [Perimeter]

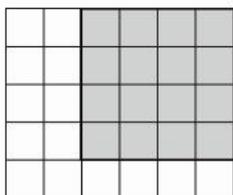
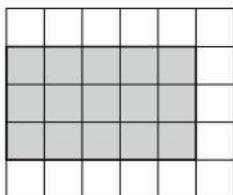
Use a ruler to find the perimeter of the rectangle in millimetres.



mm

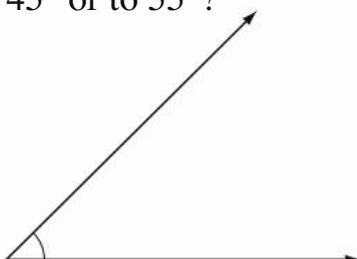
26. [Area / Volume]

Does the rectangle and the square have the same area?



27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 45° or to 55°?



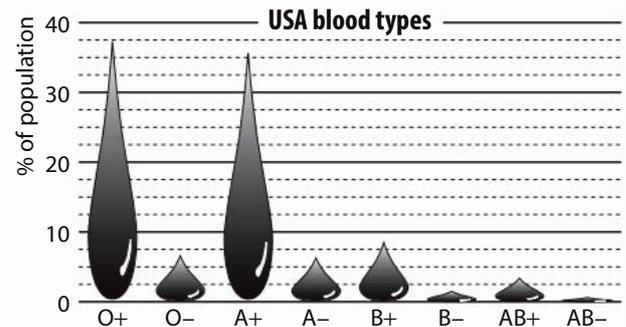
28. [Location / Transformation]

Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



29. [Statistics]

Which blood type accounts for about 8% of the USA population?



30. [Probability]

'I will grow to reach 3 metres in height.'
 Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

31. [Problem Solving 1]

Six rhinoceros are equal in weight to one elephant and four rhinoceros. What fraction of the weight of an elephant is the weight of a rhinoceros?

32. [Problem Solving 2]

Complete the addition table.

+	13		
8			20
	28		
9		27	

33. [Problem Solving 3]

The sum of four consecutive odd numbers is 48. What is the smallest of these numbers?



Test 3

Covering worksheets

2.1 - 2.4

Name:

1. [+ Whole Numbers to 10]

	3	14	7	10	5	12	6	9	18	11
+ 6										

2. [- Whole Numbers to 10]

	8	11	14	7	19	5	13	20	12	6
- 2										

3. [× Whole Numbers to 12]

	11	8	2	10	3	9	4	7	6	5
× 11										

4. [÷ Whole Numbers to 12]

	48	36	44	40	12	28	32	16	24	20
÷ 4										

5. [Large Number +, -]

$$\begin{array}{r} 8574 \\ - 3192 \\ \hline \end{array}$$

6. [Large Number ×, ÷]

$$\begin{array}{r} \\ 3 \overline{) 246} \\ \hline \end{array}$$

7. [Decimal +, -]

$$\begin{array}{r} 13.9 \\ + 6.7 \\ \hline \end{array}$$

8. [Decimal ×, ÷]

$$\begin{array}{r} 3.7 \\ \times 4 \\ \hline \end{array}$$

9. [Fraction +, -]

$$2\frac{2}{7} + \frac{3}{7} =$$

10. [Fraction ×, ÷]

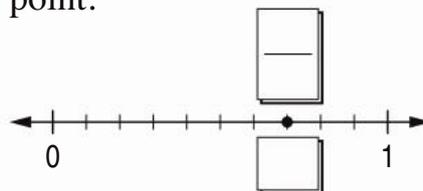
$$\frac{1}{3} \text{ of } \$60 =$$

11. [Percentages]

$$25\% \text{ of } 100 =$$

12. [Decimals / Fractions / Percentages]

Name the fraction and the decimal at the marked point.



13. [Integers]

Use < or > to make a true statement.

$$2 \quad \square \quad -5$$

14. [Rates / Ratios]

A helicopter achieved forward flight at speeds of 300 km/h. At this rate what distance does it travel in two hours?

 km

15. [Indices / Square Roots]

$$10^1 =$$

16. [Order of Operations]

$$16 - 4 - (3 + 5) =$$

17. [Exploring Numbers]

What is the value of the underlined digit in the number 1.052?

18. [Multiples / Factors / Primes]

Is 4 a factor of 156?

19. [Number Patterns]

Complete the table:

	Lamborghini				
km (city)	16	32	48		
litres	4	8	12	16	20

20. [Expressions]

Simplify $3q + q$

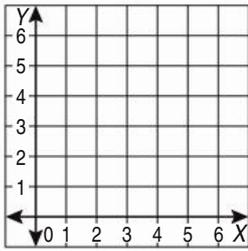
21. [Substitution]

If $a = 3$, find the value of $6a - 5$

22. [Equations]

$$4 \times \square = 28$$

23. [Coordinates]
Starting at (2,6), draw a line to (4,6) then continue to (6,1), (0,1) and back to (2,6). What shape have you drawn?

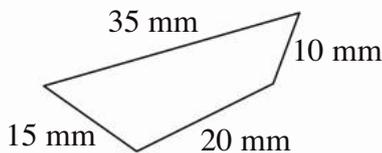


24. [Units of Measurement / Time]

2000 g = kg

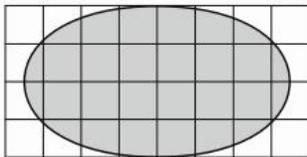
25. [Perimeter]

Calculate the perimeter of the quadrilateral.



26. [Area / Volume]

Find the area of the shaded shape.
[Round to the nearest whole number.]

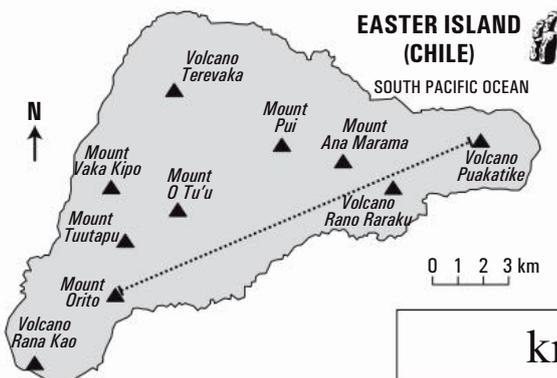


27. [Shapes]

Draw a kite marking the congruent sides and congruent angles.

28. [Location / Transformation]

Using the scale, what is the straight distance between Mount Orito and Volcano Puakatike?



29. [Statistics]

Which fruit has the lowest water content?

FRUIT	Calories per piece	Water content (%)
Plum	25	85
Pear	45	84
Peach	35	88
Orange	35	87
Nectarine	42	80
Kiwi	34	75
Banana	107	74
Apricot	30	86
Apple	44	84

30. [Probability]

A steak comes well done, medium or rare and is served with vegetables or salad. Find the size of the sample space. [Complete the table.]

Outcomes (sample space)	
well done	vegetables
well done	salad
medium	

31. [Problem Solving 1]

Write the missing operations:

9 + 4 2 4 = 5

32. [Problem Solving 2]

Two positive numbers have a sum of 16 and a product of 60. Find the two numbers.

33. [Problem Solving 3]

Fill in the magic square. [Every row, column and diagonal has the same sum.]

10			5
	9		18
	16	15	
19	7		12



Test 3

Covering worksheets

2.1 - 2.4

Name:

1. [+ Whole Numbers to 10]

	12	8	9	6	3	10	4	11	5	7
+ 8										

2. [- Whole Numbers to 10]

	20	16	13	17	10	19	12	15	18	14
- 10										

3. [× Whole Numbers to 12]

	11	5	3	10	8	9	12	6	7	4
× 2										

4. [÷ Whole Numbers to 12]

	90	45	36	81	108	63	27	72	99	54
÷ 9										

5. [Large Number +, -]

$$\begin{array}{r} 7653 \\ - 4281 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$\frac{1}{2} \text{ of } \$70 =$$

 \$

16. [Order of Operations]

$$8 - (6 - 2) + 10 =$$

6. [Large Number ×, ÷]

$$\begin{array}{r} \\ 5 \overline{) 455} \\ \hline \end{array}$$

11. [Percentages]

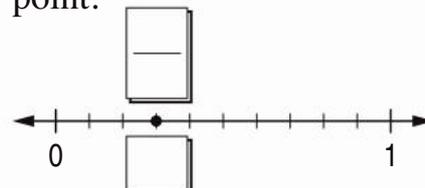
$$75\% \text{ of } 100 =$$

17. [Exploring Numbers]

What is the value of the underlined digit in the number 22.134?

12. [Decimals / Fractions / Percentages]

Name the fraction and the decimal at the marked point.



18. [Multiples / Factors / Primes]

Is 6 a factor of 320?

7. [Decimal +, -]

$$\begin{array}{r} 24.8 \\ + 5.5 \\ \hline \end{array}$$

13. [Integers]

Use < or > to make a true statement.

$$-7 \quad \square \quad 0$$

19. [Number Patterns]

Complete the table:

	Aston Martin				
km (city)	20	40	60		
litres	4	8	12	16	20

8. [Decimal ×, ÷]

$$\begin{array}{r} 2.9 \\ \times 5 \\ \hline \end{array}$$

14. [Rates / Ratios]

A Siemens Europrinter electric locomotive reached 350 km/h in 2006. At this rate how far can it travel in three hours?

 km

20. [Expressions]

Simplify $b + 5b$

21. [Substitution]

If $r = 4$, find the value of $5r - 6$

9. [Fraction +, -]

$$2\frac{3}{11} + \frac{6}{11} =$$

15. [Indices / Square Roots]

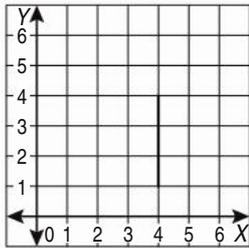
$$10^2 =$$

22. [Equations]

$$\square \times 8 = 48$$

23. [Coordinates]

Starting at (1,4), draw a line to (3,5) then continue to (6,5), (6,2), (4,1), (1,1), (1,4), (4,4) and (6,5). What shape have you drawn?

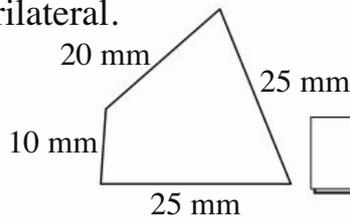


24. [Units of Measurement / Time]

7 kg = g

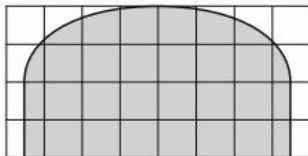
25. [Perimeter]

Calculate the perimeter of the quadrilateral.


 mm

26. [Area / Volume]

Find the area of the shaded shape.
[Round to the nearest whole number.]

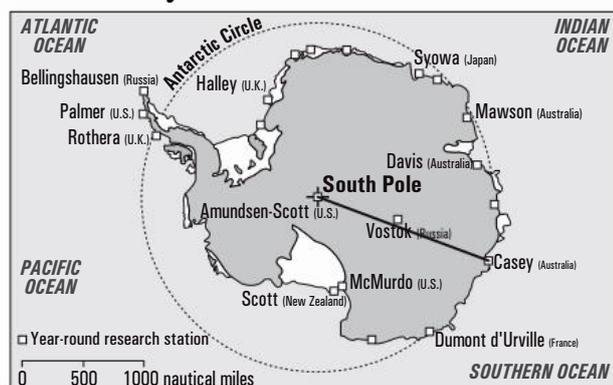

 sq. units

27. [Shapes]

Draw a rhombus marking the congruent sides and congruent angles.

28. [Location / Transformation]

Using the scale, what is the distance from Casey station to the South Pole?


 nautical miles

29. [Statistics]

Which fruit has the most calories per piece?

FRUIT	Calories per piece	Water content (%)
Avocado	150	60
Grapes (100g)	50	82
Grapefruit	100	91
Passionfruit	30	50
Paw Paw	28	70
Mango	40	80
Cantelope	25	90
Pineapple	50	87
Lemon	20	85

30. [Probability]

Kay may choose art, drama, graphics or music on Tuesday or Wednesday. What is the size of the sample space?

[Complete the table.]

Outcomes (sample space)	
art	Tuesday
art	Wednesday
drama	Tuesday
drama	

31. [Problem Solving 1]

Write the missing operations:

18 + 3 4 6 = 20

32. [Problem Solving 2]

Two positive numbers have a sum of 8 and a product of 12. Find the two numbers.

33. [Problem Solving 3]

Fill in the magic square.

[Every row, column and diagonal has the same sum.]

1			12
	11		13
	5	16	
15	4		6



Test 4

Covering worksheets

2.5 - 2.8

Name:

1. [+ Whole Numbers to 10]

	6	14	10	8	11	15	12	7	9	13
+ 5										

2. [- Whole Numbers to 10]

	12	17	14	10	11	18	13	16	9	15
- 8										

3. [× Whole Numbers to 12]

	5	8	10	6	3	9	11	12	4	7
× 7										

4. [÷ Whole Numbers to 12]

	18	9	3	15	6	24	30	12	27	21
÷ 3										

5. [Large Number +, -]

$$\begin{array}{r} 6534 \\ + 2704 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$2 \div \frac{1}{3} =$$

16. [Order of Operations]

$$7 \times (3 + 7) =$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 284 \\ \times 3 \\ \hline \end{array}$$

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{10} = \frac{\square}{80}$$

17. [Exploring Numbers]

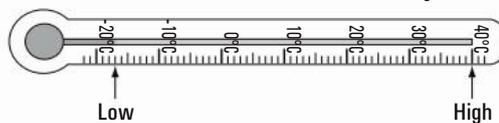
Write the number 75 000 in words.

7. [Decimal +, -]

$$\begin{array}{r} 9.04 \\ - 5.87 \\ \hline \end{array}$$

13. [Integers]

What is the difference between the highest and lowest temperatures recorded in Milan, Italy?


 °C

18. [Multiples / Factors / Primes]

List all the factors of 22 in ascending order.

8. [Decimal ×, ÷]

$$\begin{array}{r} \square \\ 8 \overline{) 0.56} \end{array}$$

14. [Rates / Ratios]

A pigeon flies 250 km in two and a half hours. What is its average speed in kilometres per hour?

 km/h

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{25}, \frac{1}{5}, 1, 5, \square, \square$$

20. [Expressions]

Simplify $v + 2v + 2v$

9. [Fraction +, -]

$$2 - \frac{4}{9} =$$

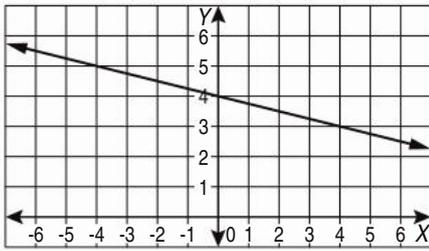
15. [Indices / Square Roots]

$$\sqrt{4} =$$

22. [Equations]

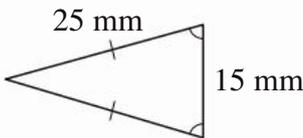
$$\square - 14 = 16$$

23. [Coordinates]
Which point lies on the line graphed below?
M(-5,4) N(4,3) P(4,0)

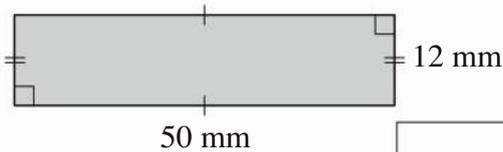


24. [Units of Measurement / Time]
2400 mm = cm

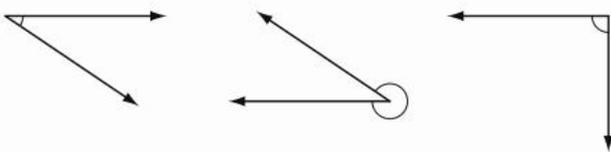
25. [Perimeter]
Calculate the perimeter of the isosceles triangle.


 mm

26. [Area / Volume]
Using $A = lw$ find the area of the rectangle.


 mm²

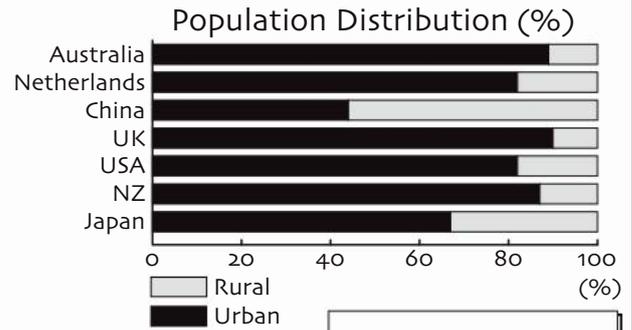
27. [Shapes]
Circle the acute angle.



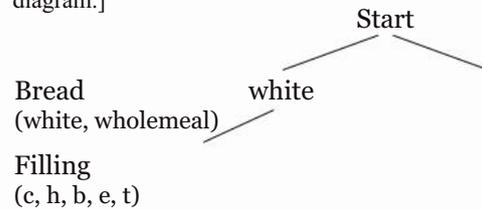
28. [Location / Transformation]
By how many degrees must the big hand of this clock rotate to show exactly 3:30?



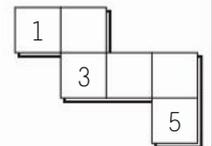
29. [Statistics]
Which of the countries shown has the lowest percentage of rural population?



30. [Probability]
Sandwiches can be made using one type of bread (white, wholemeal) and one type of filling (cheese, ham, beef, egg, tomato). How many different types of sandwiches are possible? [Complete the tree diagram.]

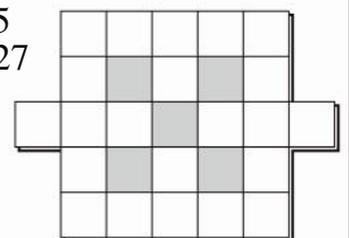


31. [Problem Solving 1]
Fill in the spaces so that, when folded, the net will form a standard die.
[On a standard die, opposite sides add to 7]

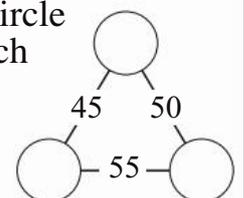


32. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:

- 2 digits: 43 45
3 digits: 369 627
5 digits: 12261
12431
25551
19612



33. [Problem Solving 3]
Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Test 4

Covering worksheets

2.5 - 2.8

Name:

1. [+ Whole Numbers to 10]

	9	2	7	10	4	8	1	3	6	5
+ 10										

2. [- Whole Numbers to 10]

	15	13	11	8	14	12	6	7	10	9
- 5										

3. [× Whole Numbers to 12]

	12	8	11	5	4	7	9	6	3	10
× 4										

4. [÷ Whole Numbers to 12]

	55	121	99	66	132	88	33	77	110	44
÷ 11										

5. [Large Number +, -]

$$\begin{array}{r} 4852 \\ + 3097 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$3 \div \frac{1}{4} =$$

16. [Order of Operations]

$$4 \times (6 + 5) =$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 137 \\ \times 5 \\ \hline \end{array}$$

11. [Percentages]

$$10\% \text{ of } \$2.00 =$$

 ¢

17. [Exploring Numbers]

Write the number 42000 in words.

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{4} = \frac{\quad}{36}$$

18. [Multiples / Factors / Primes]

List all the factors of 21 in ascending order.

7. [Decimal +, -]

$$\begin{array}{r} 3.58 \\ - 1.59 \\ \hline \end{array}$$

13. [Integers]

What is the difference between the highest and the lowest temperatures recorded in Hiroshima, Japan?


 °C

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{100}, \frac{1}{10}, 1, 10, \quad, \quad$$

8. [Decimal ×, ÷]

$$\begin{array}{r} \\ 3 \overline{) 0.24} \\ \hline \end{array}$$

14. [Rates / Ratios]

A hummingbird flies 200 km in two and a half hours. What is its average speed in kilometres per hour?

 km/h

20. [Expressions]

Simplify $3r + 2r + r$

21. [Substitution]

If $x = -5$, find the value of $x - 8$

9. [Fraction +, -]

$$3 - \frac{3}{8} =$$

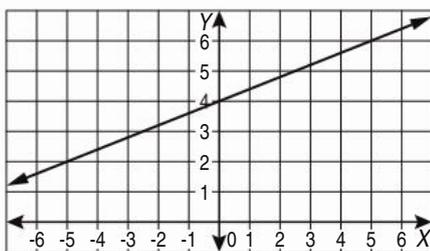
15. [Indices / Square Roots]

$$\sqrt{16} =$$

22. [Equations]

$$\quad - 12 = 17$$

23. [Coordinates]
Which point lies on the line graphed below?
A(0,5) B(3,4) C(-5,2)

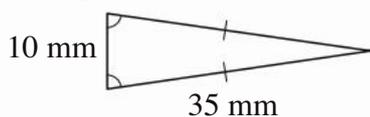


24. [Units of Measurement / Time]

16000 m = km

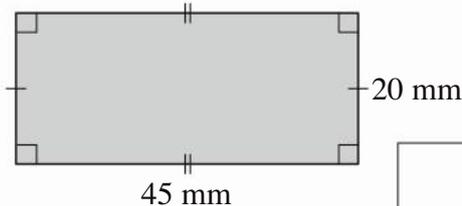
25. [Perimeter]

Calculate the perimeter of the isosceles triangle.


 mm

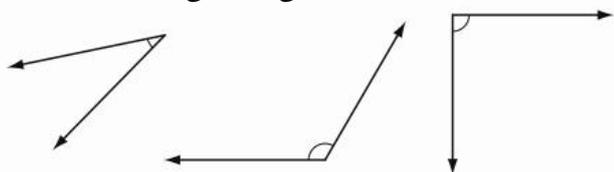
26. [Area / Volume]

Using $A = lw$ find the area of the rectangle.


 mm²

27. [Shapes]

Circle the right angle.

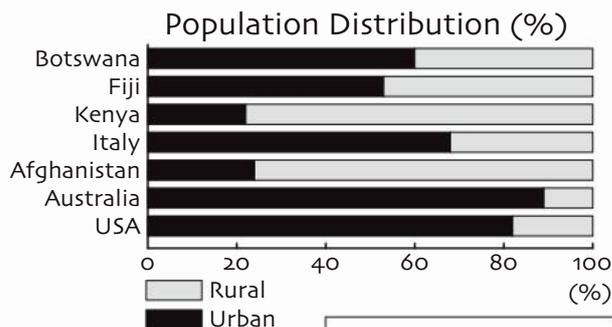


28. [Location / Transformation]

By how many degrees must the big hand of this clock rotate to show exactly 4:45?

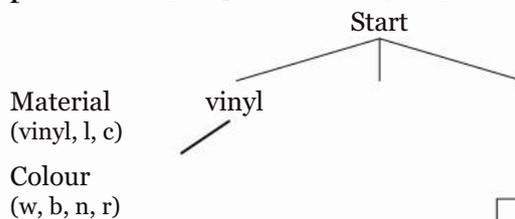


29. [Statistics]
Which of the countries shown has the greatest percentage of rural population?



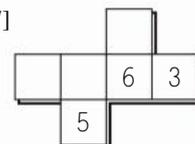
30. [Probability]

Handbags come in three materials (vinyl, leather, cloth) and four colours (white, brown, navy, red). How many different types of handbags are possible? [Complete the tree diagram.]



31. [Problem Solving 1]

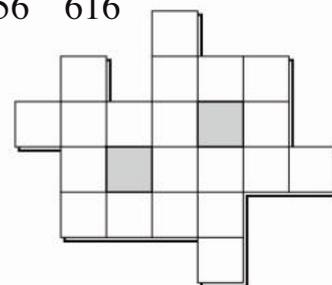
Fill in the spaces so that, when folded, the net will form a standard die. [On a standard die, opposite sides add to 7]



32. [Problem Solving 2]

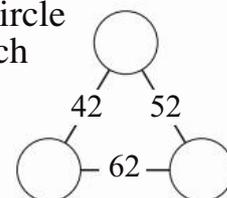
Fill in the cross number puzzle using the following numbers:

- 3 digits: 156 456 616
4 digits: 1467 2435 3495 7493
5 digits: 21519



33. [Problem Solving 3]

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Test 5

Covering worksheets

3.1 - 3.4

Name:

1. [+ Whole Numbers to 10]

	15	7	22	8	10	19	21	24	16	3
+ 4										

2. [- Whole Numbers to 10]

	27	12	10	21	13	16	15	28	9	14
- 7										

3. [× Whole Numbers to 12]

	4	5	10	8	7	11	3	6	9	12
× 9										

4. [÷ Whole Numbers to 12]

	64	32	48	96	40	72	88	80	24	56
÷ 8										

5. [Large Number +,-]

$$\begin{array}{r} 3480 \\ - 3295 \\ \hline \end{array}$$

10. [Fraction ×,+]

$$\frac{1}{3} \times \frac{1}{5} =$$

17. [Exploring Numbers]

Round 81 099 to the nearest thousand.

6. [Large Number ×,+]

$$\begin{array}{r} 642 \\ \times 40 \\ \hline \end{array}$$

11. [Percentages]

40% of 60 =

18. [Multiples / Factors / Primes]

What is the highest common factor of 14 and 21?

7. [Decimal +,-]

$$\begin{array}{r} 52.86 \\ + 31.4 \\ \hline \end{array}$$

12. [Decimals / Fractions / Percentages]

Write 0.5 as a percentage.

19. [Number Patterns]

Complete the pattern:

192, 96, 48, 24, 12, ,

8. [Decimal ×,+]

$$\begin{array}{r} 12.04 \\ \times 7 \\ \hline \end{array}$$

13. [Integers]

The city of New Orleans ranges in elevation from 8 m to -2 m. What is the difference in height?

 m

20. [Expressions]

Write as an expression:
The sum of y and thirty

9. [Fraction +,-]

$$\frac{8}{9} - \frac{5}{9} =$$

14. [Rates / Ratios]

Simplify the ratio

15 : 6 : 21

 : :

21. [Substitution]

If $d = 14$ and $e = 8$, find the value of $d + e$

15. [Indices / Square Roots]

$$\sqrt{100} =$$

22. [Equations]

$$\frac{1}{2} \text{ of } \boxed{} = 9$$

23. [Coordinates]

Complete the table for this rule:

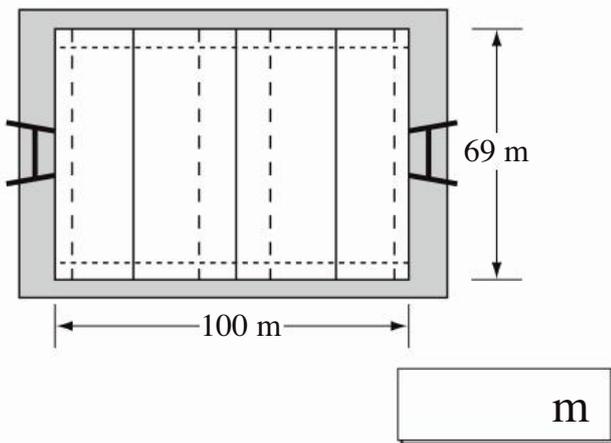
Number of fruit servings (x)	Number of calories ($70x$)
1	$70 \times 1 = 70$
2	
3	
4	
5	
6	

24. [Units of Measurement / Time]

6000 mL = L

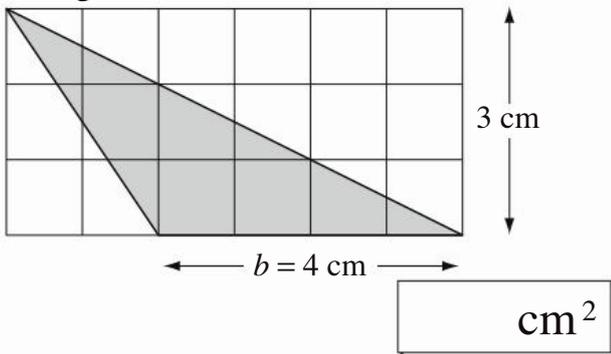
25. [Perimeter]

What is the perimeter of the rectangular Rugby Union pitch?



26. [Area / Volume]

Using $A = \frac{1}{2}bh$ find the area of the triangle.



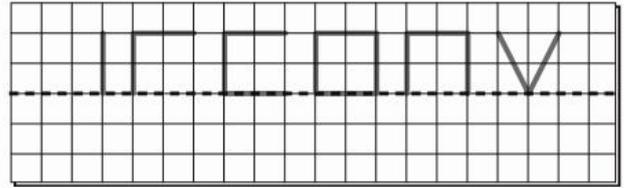
27. [Shapes]

I am a 2-dimensional shape with four sides. I have only one pair of opposite sides parallel. What am I?

- A) a rectangle B) a trapezium
C) a rhombus D) a kite

28. [Location / Transformation]

Redraw this diagram after reflecting it in the horizontal dotted line.



29. [Statistics]

This table shows the number of petals on some flower species. Find the median and range of the data.

Number of petals						
Iris	Fuschia	Wildrose	Columbine	Narcissus	Marigold	Cineraria
3	4	5	5	6	13	13

median = range =

30. [Probability]

When the spinner is spun once, what is the probability of stopping on yellow (Y)? [Give your answer as a fraction in simplest form.]

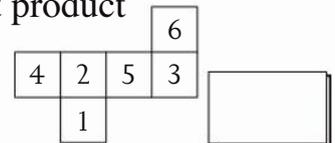


31. [Problem Solving 1]

The sum of four consecutive whole numbers is 42. What are the four numbers?

32. [Problem Solving 2]

This net can be folded to form a cube. The numbers on the three faces meeting at any vertex can be multiplied together. What is the largest product for the vertices of this cube?



33. [Problem Solving 3]

Deduce the 3-digit secret number.

[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	1 2 7	-	1
2nd	3 1 4	-	1
3rd	5 3 2	3	-



Test 5

Covering worksheets

3.1 - 3.4

Name:

1. [+ Whole Numbers to 10]

	15	9	12	13	21	18	4	17	20	6
+ 9										

2. [- Whole Numbers to 10]

	15	8	10	26	13	19	21	12	24	17
- 6										

3. [× Whole Numbers to 12]

	12	3	8	11	6	9	4	7	5	10
× 11										

4. [+ Whole Numbers to 12]

	49	42	35	84	7	56	28	63	70	21
÷ 7										

5. [Large Number +,-]

$$\begin{array}{r} 6701 \\ - 4850 \\ \hline \end{array}$$

10. [Fraction ×,+]

$$\frac{1}{5} \times \frac{1}{6} =$$

17. [Exploring Numbers]

Round 45 800 to the nearest thousand.

6. [Large Number ×,+]

$$\begin{array}{r} 573 \\ \times 20 \\ \hline \end{array}$$

11. [Percentages]

20% of 90 =

18. [Multiples / Factors / Primes]

What is the highest common factor of 12 and 30?

7. [Decimal +,-]

$$\begin{array}{r} 42.6 \\ + 23.98 \\ \hline \end{array}$$

12. [Decimals / Fractions / Percentages]

Write 0.3 as a percentage.

19. [Number Patterns]

Complete the pattern:

320, 160, 80, 40, 20, ,

8. [Decimal ×,+]

$$\begin{array}{r} 13.06 \\ \times 4 \\ \hline \end{array}$$

13. [Integers]

In Queenstown the highest recorded temperature is 34°C and the lowest is -8°C. What is the temperature range?

 °C

20. [Expressions]

Write as an expression:

The product of eight and p

9. [Fraction +,-]

$$\frac{7}{10} - \frac{3}{10} =$$

14. [Rates / Ratios]

Simplify the ratio

8 : 20 : 16

 : :

21. [Substitution]

If $p = 16$ and $q = 9$, find the value of $p + q$

15. [Indices / Square Roots]

$$\sqrt{49} =$$

22. [Equations]

$$\frac{1}{5} \text{ of } \text{ } = 8$$

23. [Coordinates]

Complete the table for this rule:

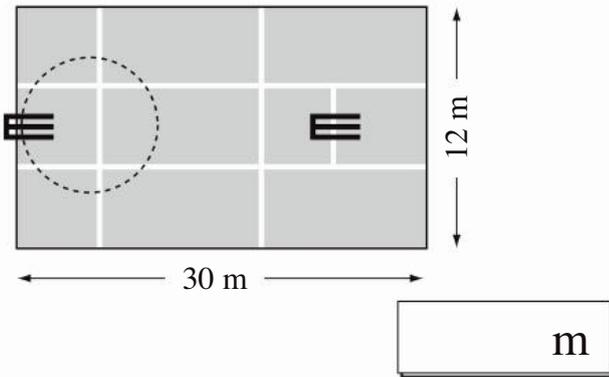
No. of rows (x)	Number of seats ($30x$)
1	$30 \times 1 = 30$
2	
3	
4	
5	
6	

24. [Units of Measurement / Time]

4 L = mL

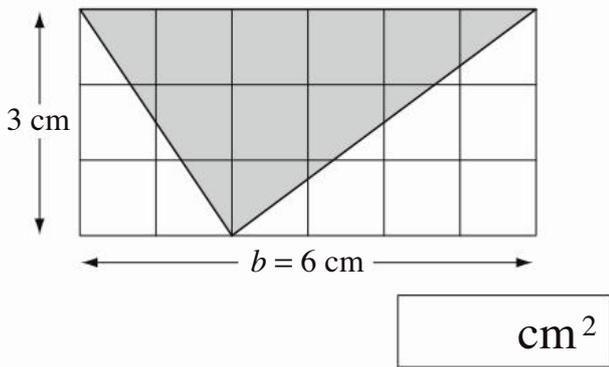
25. [Perimeter]

What is the perimeter of the rectangular indoor cricket court?



26. [Area / Volume]

Using $A = \frac{1}{2}bh$ find the area of the triangle.



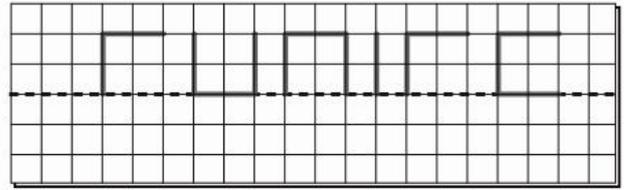
27. [Shapes]

I am a 2-dimensional shape with four sides. Both my pairs of opposite sides are parallel. None of my angles is 90°. What am I?

- A) a rectangle B) a trapezium
C) a parallelogram D) a kite

28. [Location / Transformation]

Redraw this diagram after reflecting it in the horizontal dotted line.



29. [Statistics]

This table shows the number of petals on some flower species. Find the median and range of the data.

Number of petals						
Lily	Larkspur	Buttercup	Amaryllis	Crocus	Delphinium	Aster
3	5	5	6	6	8	21

median = range =

30. [Probability]

When the spinner is spun once, what is the probability of stopping on green (G)? [Give your answer as a fraction in simplest form.]

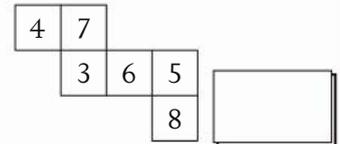


31. [Problem Solving 1]

The sum of five consecutive whole numbers is 25. What are the five numbers?

32. [Problem Solving 2]

This net can be folded to form a cube. The numbers on the three faces meeting at any vertex can be multiplied together. What is the smallest product for the vertices of this cube?



33. [Problem Solving 3]

Deduce the 3-digit secret number.

[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	2 3 5	-	1
2nd	4 2 5	-	1
3rd	6 4 3	3	-



Test 6

Covering worksheets

3.5 - 3.8

Name:

1. [+ Whole Numbers to 10]

	23	19	4	15	18	20	11	6	17	22
+ 7										

2. [- Whole Numbers to 10]

	16	28	19	30	11	7	22	13	25	14
- 4										

3. [× Whole Numbers to 12]

	12	9	3	10	4	5	7	8	11	6
× 8										

4. [÷ Whole Numbers to 12]

	30	60	48	66	36	54	72	18	24	42
÷ 6										

5. [Large Number +, -]

$$\begin{array}{r} 7059 \\ + 4832 \\ \hline \end{array}$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 602 \\ \times 24 \\ \hline \end{array}$$

7. [Decimal +, -]

$$\begin{array}{r} 40.63 \\ - 15.8 \\ \hline \end{array}$$

8. [Decimal ×, ÷]

$$\begin{array}{r} \\ 7 \overline{) 16.1} \end{array}$$

9. [Fraction +, -]

$$3\frac{4}{11} + \frac{9}{11} =$$

10. [Fraction ×, ÷]

$$\frac{1}{3} \div 5 =$$

11. [Percentages]

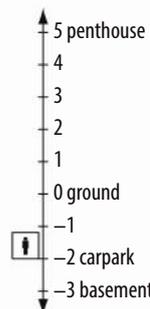
In a store a \$200 smart phone is marked '20% off'. What is the sale price of the phone?

12. [Decimals / Fractions / Percentages]

Change $\frac{2}{5}$ to a decimal.

13. [Integers]

From the carpark Abdul rides the elevator up 7 levels and down 5. At which level is Abdul now?



14. [Rates / Ratios]

Which ratio is equivalent to 3 : 8?

- A) 3 : 4
B) 9 : 64
C) 9 : 24

15. [Indices / Square Roots]

$$70^2 =$$

16. [Order of Operations]

$$20 - 16 \div (1 + 3) =$$

17. [Exploring Numbers]

Place in ascending order: 0.37, 0.037, 0.703, 0.07

18. [Multiples / Factors / Primes]

List all the prime numbers between 6 and 18.

19. [Number Patterns]

Complete the pattern:

$$3, 4, 6, 7, 9, \underline{\quad}, \underline{\quad}$$

20. [Expressions]

Choose the like terms:

$$3f, 3g, f$$

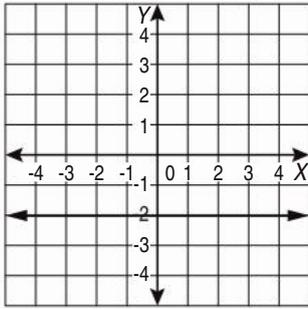
21. [Substitution]

If $d = 3$ and $e = 4$, find the value of $d + e - 6$

22. [Equations]

$$\frac{2}{5} \text{ of } \underline{\quad} = 6$$

23. [Coordinates]



The line above shows:

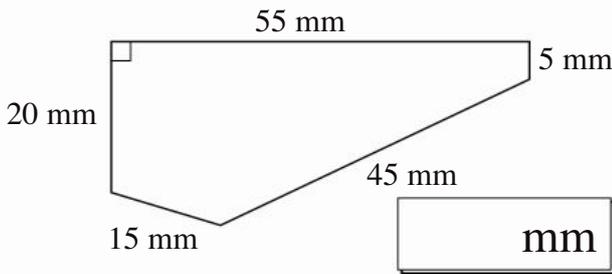
- A) All points where $x = -2$
- B) All points where $y = -2$
- C) All points where $y = x - 2$

24. [Units of Measurement / Time]

300 s = min

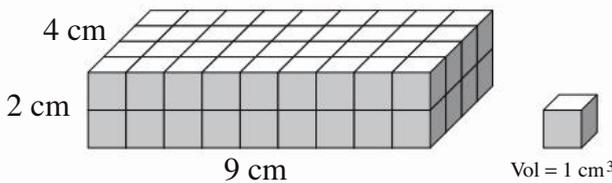
25. [Perimeter]

Calculate the perimeter of the polygon.


 mm

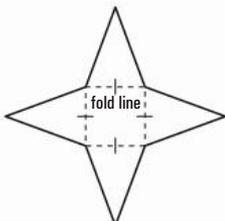
26. [Area / Volume]

Using Volume = length \times width \times height, find the volume of the rectangular prism.


 cm³

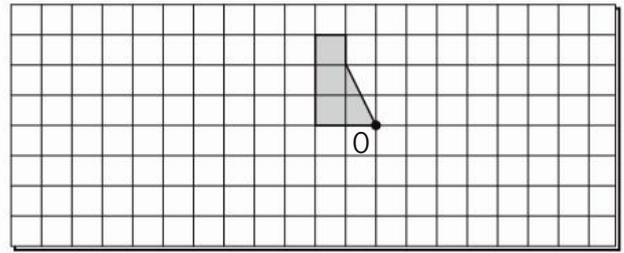
27. [Shapes]

What 3-dimensional shape can this net be used to make?



28. [Location / Transformation]

Redraw this shape after rotating it 180° about the point O and then translating it 7 units left.



29. [Statistics]

In which of the years shown below did the unemployment rate in Australia first reach 5%?



30. [Probability]

A bag contains 6 white, 2 black and 10 green marbles. If a marble is selected at random, find the probability that it is a green marble. [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1]

If this net was folded to form a cube, which letter will be opposite the letter E?

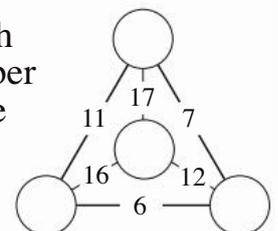


32. [Problem Solving 2]

The school concert raised \$1360 from the sale of 400 tickets. If adult tickets cost \$5 and student tickets \$3, how many student tickets were sold?

33. [Problem Solving 3]

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Test 6

Covering worksheets

3.5 - 3.8

Name:

1. [+ Whole Numbers to 10]

	21	16	7	19	22	18	15	4	13	20
+ 8										

2. [- Whole Numbers to 10]

	25	14	29	18	27	22	13	10	21	16
- 9										

3. [× Whole Numbers to 12]

	9	10	8	4	12	5	11	7	3	6
× 4										

4. [÷ Whole Numbers to 12]

	132	108	96	36	60	48	144	72	120	84
÷ 12										

5. [Large Number +, -]

$$\begin{array}{r} 5146 \\ + 9738 \\ \hline \end{array}$$

6. [Large Number ×, ÷]

$$\begin{array}{r} 403 \\ \times 35 \\ \hline \end{array}$$

7. [Decimal +, -]

$$\begin{array}{r} 32.54 \\ - 13.8 \\ \hline \end{array}$$

8. [Decimal ×, ÷]

$$9 \overline{) 22.5}$$

9. [Fraction +, -]

$$2\frac{14}{15} + \frac{3}{15} =$$

10. [Fraction ×, ÷]

$$\frac{1}{4} \div 3 =$$

11. [Percentages]

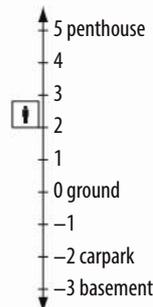
In a store a \$140 bicycle is marked '10% off'. What is the sale price of the bicycle? \$

12. [Decimals / Fractions / Percentages]

Change $\frac{3}{5}$ to a decimal.

13. [Integers]

From level 2 Cherie rides the elevator up 3 levels and down 7. At which level is Cherie now?



14. [Rates / Ratios]

Which ratio is equivalent to 5 : 9?

- A) 10 : 18
B) 25 : 81
C) 30 : 45

15. [Indices / Square Roots]

$$50^2 =$$

16. [Order of Operations]

$$6 + 27 \div (7 - 4) =$$

17. [Exploring Numbers]

Place in descending order: 0.19, 0.09, 0.91, 0.091

18. [Multiples / Factors / Primes]

List all the prime numbers between 10 and 20.

19. [Number Patterns]

Complete the pattern:

$$4, 6, 9, 11, 14, \underline{\quad}, \underline{\quad}$$

20. [Expressions]

Choose the like terms:

$$2j, j, k$$

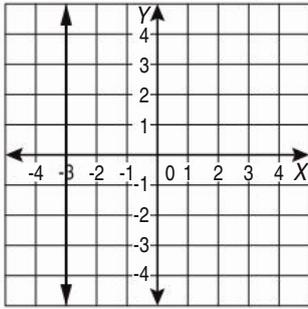
21. [Substitution]

If $b = 6$ and $c = 7$, find the value of $b + c - 4$

22. [Equations]

$$\frac{2}{7} \text{ of } \square = 6$$

23. [Coordinates]



The line above shows:

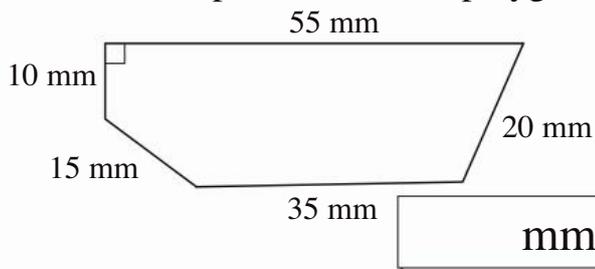
- A) All points where $x = -3$
- B) All points where $y = -3$
- C) All points where $y = x - 3$

24. [Units of Measurement / Time]

6 weeks = days

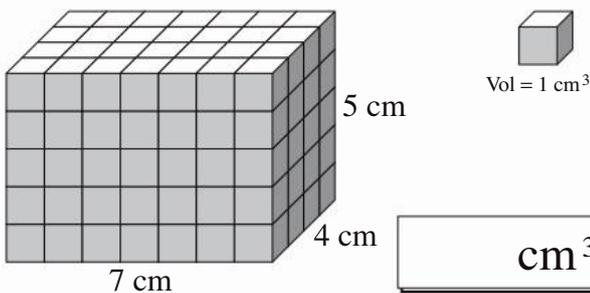
25. [Perimeter]

Calculate the perimeter of the polygon.


 mm

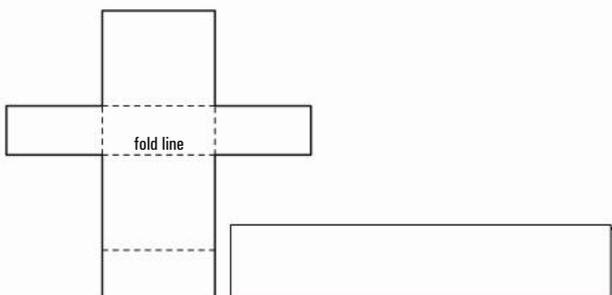
26. [Area / Volume]

Using Volume = length \times width \times height, find the volume of the rectangular prism.


 cm³

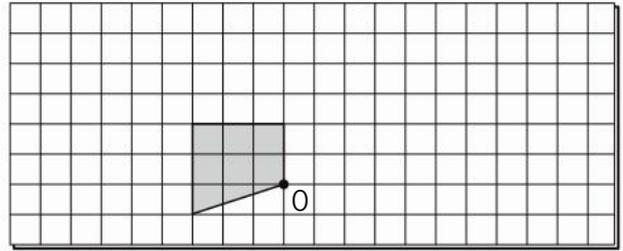
27. [Shapes]

What 3-dimensional shape can this net be used to make?



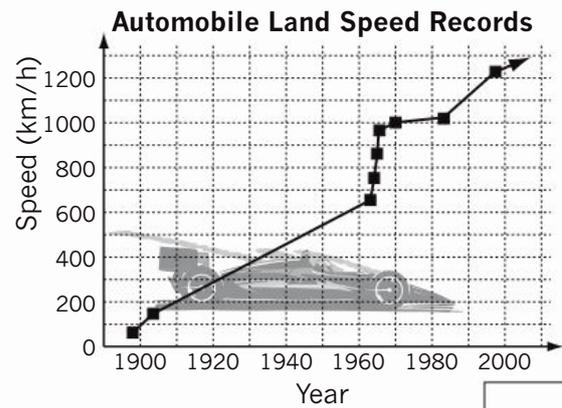
28. [Location / Transformation]

Redraw this trapezium after rotating it 90° clockwise about point O and then translating it 3 units up.



29. [Statistics]

In which year did the automobile land speed record reach 1000 km/h?

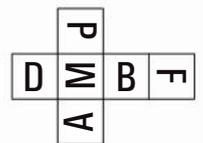


30. [Probability]

A bag contains 15 red and 30 blue raffle tickets. If a ticket is randomly selected from the bag, what is the probability of selecting a blue ticket? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1]

The net shown is folded to form a cube with **B** on the base. Which of the letters on the four vertical sides will not be the right way up?

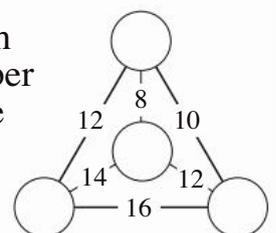


32. [Problem Solving 2]

A shop sells lollies for 60 cents and 10 cents each. Po spent \$7.40 and bought 24 lollies. How many 60 cent lollies did she buy?

33. [Problem Solving 3]

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Test 7

Covering worksheets

4.1 - 4.4

Name:

1. [+ Whole Numbers to 10]

	15	8	27	11	24	19	42	36	13	20
+ 5										

2. [- Whole Numbers to 10]

	49	12	28	45	27	33	40	16	31	44
- 8										

3. [× Whole Numbers to 12]

	12	4	11	3	7	9	8	6	10	5
× 6										

4. [÷ Whole Numbers to 12]

	72	36	99	45	108	81	90	63	54	27
÷ 9										

5. [Large Number +, -]

$$\begin{array}{r} 53000 \\ - 249 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$\frac{2}{5} \times \frac{1}{2} = \boxed{}$$

17. [Exploring Numbers]

Round 0.26 to one decimal place. $\boxed{}$

6. [Large Number ×, ÷]

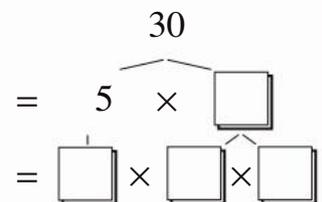
$$\frac{48000}{300} = \boxed{}$$

11. [Percentages]

12.5% of 400 = $\boxed{}$

18. [Multiples / Factors / Primes]

Express 30 as a product of prime numbers by completing the factor tree.



12. [Decimals / Fractions / Percentages]

Change $\frac{34}{50}$ to a percentage. $\boxed{}$

7. [Decimal +, -]

$$\begin{array}{r} 5.38 \\ 97.4 \\ + 6.7 \\ \hline \end{array}$$

13. [Integers]

Rafael had \$150. He spent \$650. What is Rafael's bank balance? $\boxed{}$

19. [Number Patterns]

Complete the pattern:
25, 23, 19, 17, 13, $\boxed{}$, $\boxed{}$

8. [Decimal ×, ÷] *

$$47.1 \div 100 = \boxed{}$$

14. [Rates / Ratios]

Which is cheaper per square metre?
A) \$12 for 15 m² $\boxed{}$
B) \$18 for 25 m² $\boxed{}$

20. [Expressions]

Simplify $b + c + c + c$ $\boxed{}$

9. [Fraction +, -]

$$\frac{2}{3} - \frac{2}{9} = \boxed{}$$

15. [Indices / Square Roots]

$$\sqrt{900} = \boxed{}$$

21. [Substitution]

Use $P = 6l$ to find the perimeter (P) of a regular hexagon where $l = 14$ $\boxed{}$

16. [Order of Operations]

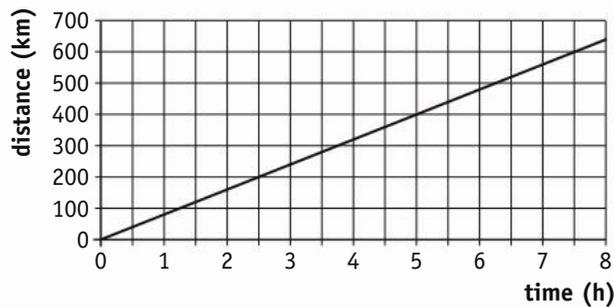
$$4 + (12 \div 3 - 2) = \boxed{}$$

22. [Equations]

$$5 + 2 \times \boxed{} = 25$$

23. [Coordinates]

This graph shows the distance travelled by a car over an 8-hour period. How long does the car take to travel 600 km?

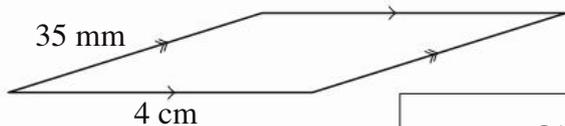


24. [Units of Measurement / Time]

The largest fish in the world is the whale shark with specimens recorded at 12.65 m. Express this in centimetres.

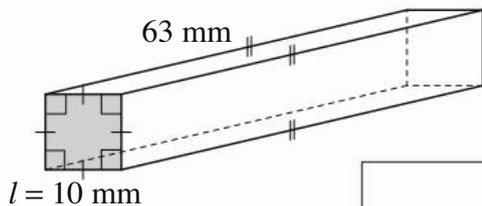
25. [Perimeter]

Express all measurements in centimetres and then find the perimeter of the parallelogram.



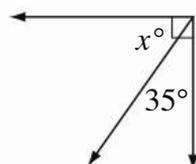
26. [Area / Volume]

Using $V = l^2h$ find the volume of the square prism.



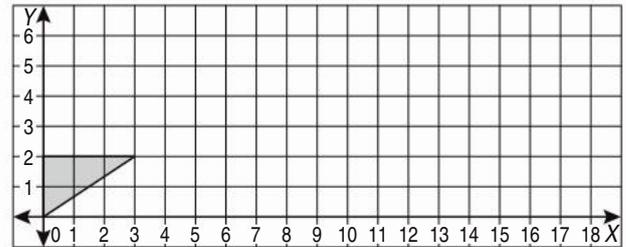
27. [Shapes]

Find the value of x° .



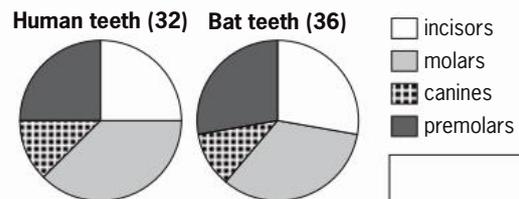
28. [Location / Transformation]

Redraw the triangle after multiplying the coordinates of its vertices by 3.



29. [Statistics]

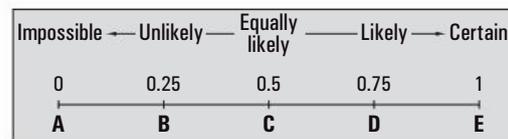
Bats have more incisors than humans. Which other type of tooth do bats also have more of?



30. [Probability]

'A spinner equally divided in four and numbered 1 to 4 is spun, and 2 is obtained.'

Which letter A to E best represents the probability of the event?



31. [Problem Solving 1]

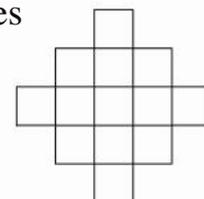
Two different views are shown of a pair of identical dice, each numbered 1 to 6. Which number is opposite the number 4? [Note: Though identical, the dice are not regular in that opposite sides may not add to 7.]



32. [Problem Solving 2]

How many squares are there in the diagram?

[Hint: There are more than 13!]



33. [Problem Solving 3]

All queen bed sheets are the same price. Which deal is cheaper per sheet?

- A) Buy 2 sheets and get 15% off
- B) Buy 3 sheets and save 20%



Test 7

Covering worksheets

4.1 - 4.4

Name:

1. [+ Whole Numbers to 10]

	26	37	15	19	8	44	32	11	40	3
+ 4										

2. [- Whole Numbers to 10]

	40	33	28	19	25	37	12	44	16	31
- 10										

3. [× Whole Numbers to 12]

	2	8	7	6	1	4	5	9	3	10
× 7										

4. [÷ Whole Numbers to 12]

	15	45	20	35	40	25	55	30	10	50
÷ 5										

5. [Large Number +, -]

$$\begin{array}{r} 76000 \\ - 857 \\ \hline \end{array}$$

10. [Fraction ×, ÷]

$$\frac{5}{8} \times \frac{3}{5} =$$

17. [Exploring Numbers]

Round 4.87 to one decimal place.

6. [Large Number ×, ÷]

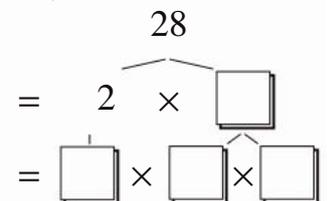
$$\frac{65000}{500} =$$

11. [Percentages]

1% of 400 =

18. [Multiples / Factors / Primes]

Express 28 as a product of prime numbers by completing the factor tree.



7. [Decimal +, -]

$$\begin{array}{r} 8.4 \\ 65.3 \\ + 0.51 \\ \hline \end{array}$$

13. [Integers]

Tully had \$350. She spent \$550. What is Tully's bank balance?

19. [Number Patterns]

Complete the pattern:

16, 15, 12, 11, 8, ,

8. [Decimal ×, ÷] *

$$78.6 \div 100 =$$

14. [Rates / Ratios]

Which is cheaper per square centimetre?

- A) \$60 for 50 cm²
B) \$25 for 20 cm²

20. [Expressions]

Simplify $j + j + k$

9. [Fraction +, -]

$$\frac{5}{6} - \frac{2}{3} =$$

15. [Indices / Square Roots]

$$\sqrt{400} =$$

21. [Substitution]

Use $P = 4l$ to find the perimeter (P) of a square where $l = 15$

16. [Order of Operations]

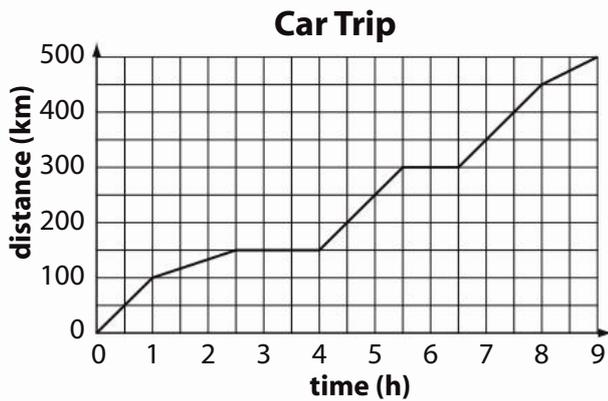
$$(9 - 2 \times 3) + 7 =$$

22. [Equations]

$$4 + 4 \times \square = 16$$

23. [Coordinates]

This graph shows the distance travelled by a car over a 9-hour period. How long does the car take to travel 200 km?

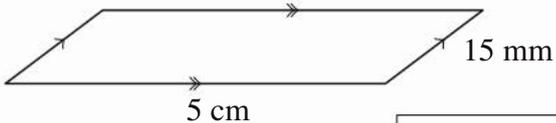


24. [Units of Measurement / Time]

The tallest mammal is the adult male giraffe. It can reach 5 m in height. Express this height in centimetres.

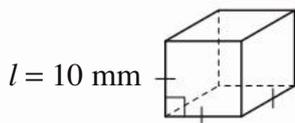
25. [Perimeter]

Express all measurements in centimetres and then find the perimeter of the parallelogram.



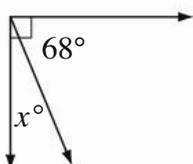
26. [Area / Volume]

Using $V = l^3$ find the volume of the cube.



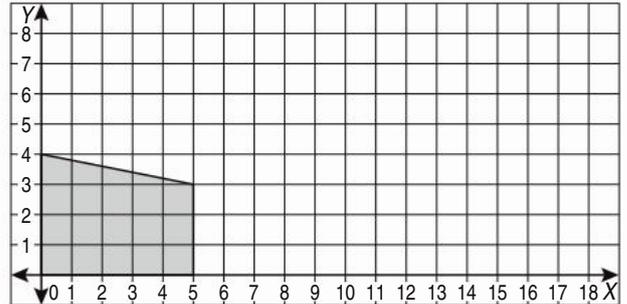
27. [Shapes]

Find the value of x° .



28. [Location / Transformation]

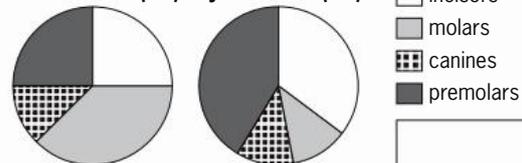
Redraw the trapezium after doubling the coordinates of its vertices.



29. [Statistics]

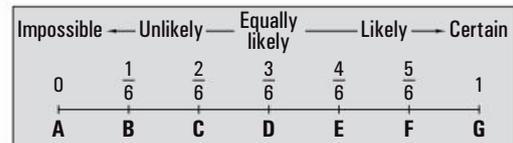
The number of canine teeth in humans and hyenas is similar. What type of tooth do hyenas have less of?

Human teeth (32) Hyena teeth (34)



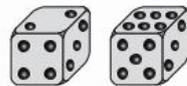
30. [Probability]

'A three comes up when a die is rolled.' Which letter A to G best represents the probability of the event?



31. [Problem Solving 1]

Two different views are shown of a pair of identical dice, each numbered 1 to 6. Which number is opposite the number 5? [Note: Though identical, the dice are not regular in that opposite sides do not always add to 7.]



32. [Problem Solving 2]

How many squares are there in the diagram? [Hint: There are more than 12!]



33. [Problem Solving 3]

All pens are the same price. Which deal is cheaper per pen?

- A) Buy 8 pens and get 25% off
B) Buy 5 pens and save 20%



Test 8

Covering worksheets

4.5 - 4.8

Name:

1. [+ Whole Numbers to 10]

	14	20	57	3	16	11	8	39	65	22
+ 6										

2. [- Whole Numbers to 10]

	9	14	62	35	17	20	46	13	91	18
- 7										

3. [× Whole Numbers to 12]

	4	9	12	5	8	3	11	6	7	10
× 9										

4. [+ Whole Numbers to 12]

	22	110	121	55	88	66	33	99	44	77
÷ 11										

5. [Large Number +,-]

$$\begin{array}{r} 1\ 6\ 8\ 3\ 4 \\ +\ 6\ 0\ 9\ 7 \\ \hline \end{array}$$

10. [Fraction ×,+]

$$\frac{2}{3} \div \frac{3}{4} =$$

17. [Exploring Numbers]
Choose the whole numbers from this list:
2010, $\frac{1}{9}$, -17, 0, -6.35

6. [Large Number ×,+]

$$\begin{array}{r} 1\ 1\ 2\ 6 \\ \times\ 1\ 5 \\ \hline \end{array}$$

11. [Percentages]
If a \$300 food processor is reduced by 20%, what is the sale price?

\$

18. [Multiples / Factors / Primes]
List the prime factors of 33.

12. [Decimals / Fractions / Percentages]
Complete the table:

Decimal	Fraction	Percentage
0.3		

19. [Number Patterns]
Complete the pattern:
-11, -8, -5, -2, ,

7. [Decimal +,-]

$$\begin{array}{r} 9\ 7 \\ -\ 0.0\ 3 \\ \hline \end{array}$$

13. [Integers]
 $-2 + 3 =$

20. [Expressions]
Di has x 20-cent pieces and y 50-cent pieces in her pocket. Which expression shows the total amount in cents she has in her pocket?
A) $20 \times y + 20 \times x$
B) $20 \times y + 50 \times x$
C) $20 \times x + 50 \times y$

8. [Decimal ×,+]

$$\begin{array}{r} 0.7 \\ \times\ 0.5 \\ \hline \end{array}$$

14. [Rates / Ratios]
The standard dimensions for small posters are 32 cm wide and 40 cm high. Find the ratio of width to height.

:

21. [Substitution]
If $u = 4$, find the value of $7 + u^2$

9. [Fraction +,-]

$$\frac{2}{3} + \frac{1}{6} =$$

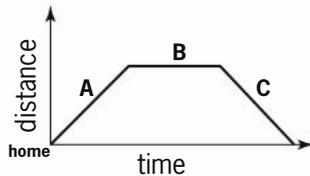
15. [Indices / Square Roots]
 $5^3 =$

22. [Equations]
Solve for x :
 $x + 3 = 8$

$x =$

23. [Coordinates]

This graph shows Nicky's distance from home while she is out walking. In which section of the graph is Nicky walking towards home?

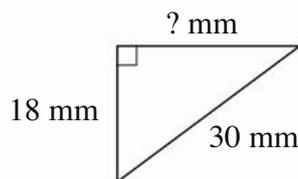


24. [Units of Measurement / Time]

Find the time in hours and minutes between 11:00 am and 9:50 pm on the same day.

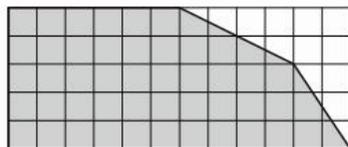
25. [Perimeter]

The perimeter of the right-angled triangle is 72 mm. Find the missing side length.



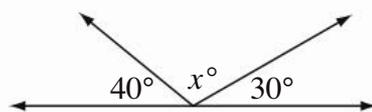
26. [Area / Volume]

Find the area of the shaded polygon.



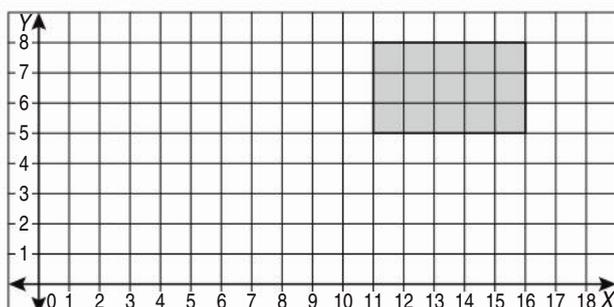
27. [Shapes]

Find the value of x° .



28. [Location / Transformation]

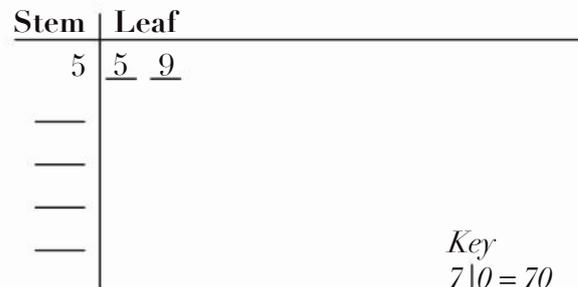
Redraw this rectangle after subtracting 5 units from the coordinates of its vertices.



29. [Statistics]

Complete the stem-and-leaf plot showing the lowest winning scores for each round of the 2018 AFL season:

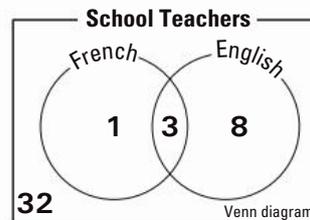
55, 94, 95, 82, 76, 77, 68, 66, 63, 67, 64, 71, 72, 75, 88, 71, 59, 80, 78, 73, 62, 66, 76



Key
7|0 = 70

30. [Probability]

What is the probability that a teacher selected at random from the staff teaches French? [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1]

A number of students are standing in a circle. They are evenly spaced and the second student is directly opposite the ninth student. How many students are there altogether?

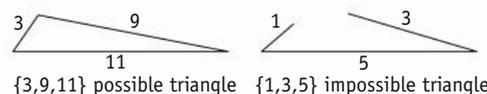
32. [Problem Solving 2]

Marek forgot the last two digits of his four-digit locker code: **59??**

If the number is divisible by 3, by 4 and by 5, what is Marek's locker code?

33. [Problem Solving 3]

Liam has six sticks of the following lengths: 1 cm, 3 cm, 5 cm, 7 cm, 11 cm and 13 cm. How many different triangles can he make using three of these sticks?





Test 8

Covering worksheets

4.5 - 4.8

Name:

1. [+ Whole Numbers to 10]

	9	45	12	76	13	90	31	18	7	14
+ 9										

2. [- Whole Numbers to 10]

	18	22	16	41	30	9	13	7	65	44
- 3										

3. [× Whole Numbers to 12]

	3	11	10	7	5	9	2	4	6	8
× 12										

4. [÷ Whole Numbers to 12]

	84	49	70	77	42	63	28	56	21	35
÷ 7										

5. [Large Number +,-]

$$\begin{array}{r} 32608 \\ + 7492 \\ \hline \end{array}$$

10. [Fraction ×,÷]

$$\frac{3}{5} \div \frac{2}{3} =$$

17. [Exploring Numbers]
Choose the whole numbers from this list:
500, -30, $\frac{1}{4}$, 11, -0.8

6. [Large Number ×,÷]

$$\begin{array}{r} 1035 \\ \times 24 \\ \hline \end{array}$$

11. [Percentages]
If a \$400 camera is reduced by 30%, what is the sale price? \$

18. [Multiples / Factors / Primes]
List the prime factors of 39.

12. [Decimals / Fractions / Percentages]
Complete the table:

Decimal	Fraction	Percentage
0.7		

19. [Number Patterns]
Complete the pattern:
-10, -6, -2, 2, ,

7. [Decimal +,-]

$$\begin{array}{r} 66 \\ - 0.08 \\ \hline \end{array}$$

13. [Integers]
 $-4 + 8 =$

20. [Expressions]
A movie ticket for an adult is \$22, and a child's ticket is \$15. Which expression shows the total cost for x adults and y children?
A) $22 \times y + 15 \times y$
B) $22 \times x + 15 \times y$
C) $22 \times y + 15 \times x$

8. [Decimal ×,÷]

$$\begin{array}{r} 0.8 \\ \times 0.6 \\ \hline \end{array}$$

14. [Rates / Ratios]
The standard dimensions for photos are 10 cm wide and 15 cm high. Find the ratio of width to height.

:

21. [Substitution]
If $k = 6$, find the value of $3 + k^2$

9. [Fraction +,-]

$$\frac{1}{4} + \frac{5}{16} =$$

15. [Indices / Square Roots]
 $2^4 =$

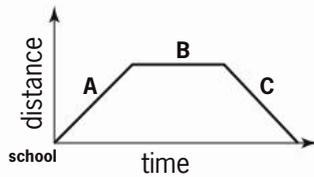
22. [Equations]
Solve for x :
 $x + 5 = 9$

$x =$

16. [Order of Operations]
 $6 + 2^2 \times 5 =$

23. [Coordinates]

This graph shows Sammy's distance from school while she is out walking. In which section of the graph is Sammy walking away from school?

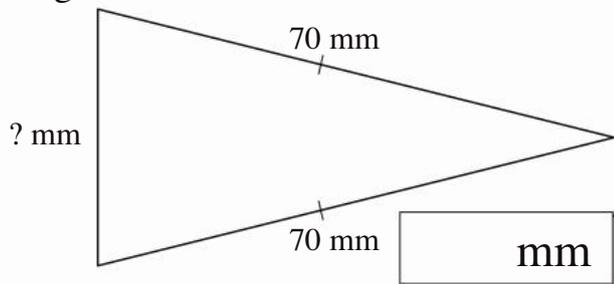


24. [Units of Measurement / Time]

Find the time in hours and minutes between 7:00 am and 8:45 pm on the same day.

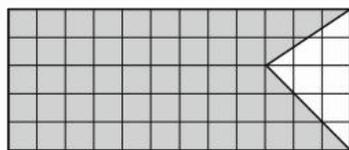
25. [Perimeter]

The perimeter of the isosceles triangle is 174 mm. Find the missing side length.



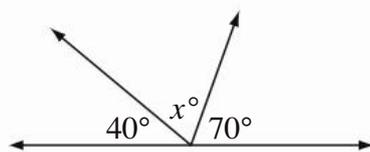
26. [Area / Volume]

Find the area of the shaded polygon.



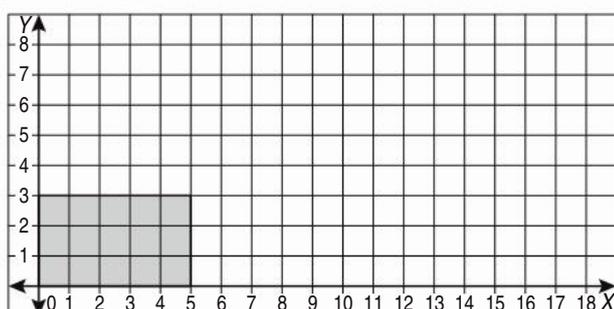
27. [Shapes]

Find the value of x° .



28. [Location / Transformation]

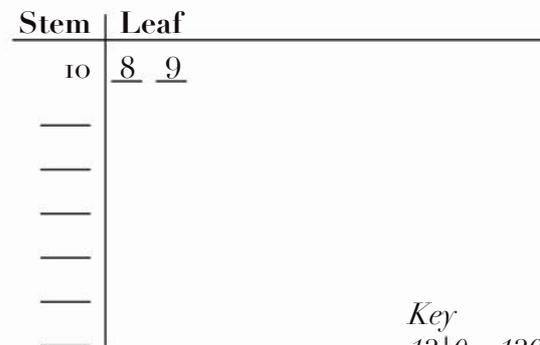
Redraw this rectangle after adding 4 units to the coordinates of its vertices.



29. [Statistics]

Complete the stem-and-leaf plot showing the highest winning scores for each round of the 2018 AFL season:

133, 121, 123, 139, 108, 113, 125, 146, 159, 146, 141, 134, 132, 109, 125, 122, 119, 130, 120, 151, 125, 158, 165

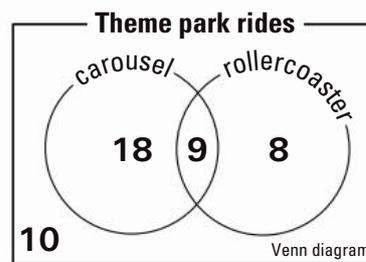


Key
12|0 = 120

30. [Probability]

What is the probability that a child chosen at random went on a carousel?

[Give your answer as a fraction in simplest form.]



31. [Problem Solving 1]

A number of students are evenly spaced around a circle. If the third student is directly opposite the eleventh student, how many students are standing in the circle?

32. [Problem Solving 2]

Roger forgot the last two digits of his four-digit locker code: 14??

If the number is divisible by 3, by 4 and by 5, what is Roger's locker code?

33. [Problem Solving 3]

Gian has six sticks of the following lengths: 1 cm, 3 cm, 5 cm, 7 cm, 9 cm and 11 cm. How many different triangles can she make using three of these sticks?



{3,9,11} possible triangle {1,3,5} impossible triangle

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10

MATHS MATE



Test 1

Covering worksheets

1.1 - 1.4

Name:

1. [+ Whole Numbers to 10]

	1	5	3	10	7	9	2	6	8	4
+ 1	2	6	4	11	8	10	3	7	9	5

2. [- Whole Numbers to 10]

	12	10	8	14	7	5	13	11	6	9
- 4	8	6	4	10	3	1	9	7	2	5

3. [× Whole Numbers to 12]

	12	6	3	8	9	11	7	4	10	5
× 5	60	30	15	40	45	55	35	20	50	25

4. [÷ Whole Numbers to 12]

	100	50	40	90	20	70	30	80	110	60
÷ 10	10	5	4	9	2	7	3	8	11	6

5. [Large Number +,-]

$$\begin{array}{r} 6590 \\ - 2340 \\ \hline \end{array}$$

4250

10. [Fraction ×,+]

$$\frac{2}{7} \times 3 =$$

$\frac{6}{7}$

16. [Order of Operations]

$$12 + 3 - 8 =$$

7

6. [Large Number ×,+]

$$\frac{96000}{100} =$$

960

11. [Percentages]

Write as a percentage:
37 out of 100.

37%

17. [Exploring Numbers]

Which number is the largest?

- A) 20543
- B) 20345
- C) 20534

A

7. [Decimal +,-]

$$\begin{array}{r} 2.75 \\ + 6.19 \\ \hline \end{array}$$

8.94

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



40%

18. [Multiples / Factors / Primes]

List the common multiples of 2 and 5 up to 35.

10, 20, 30

8. [Decimal ×,+]

$$\begin{array}{r} 0.8 \\ \times 4 \\ \hline \end{array}$$

3.2

13. [Integers]

Which state has the lowest recorded temperature?

- A) -13°C Tasmania
- B) -11°C Victoria
- C) -23°C NSW

C

19. [Number Patterns]

Complete the pattern:

4, 9, 14, 19, 24, 29, 34

9. [Fraction +,-]

$$\frac{3}{10} + \frac{4}{10} =$$

$\frac{7}{10}$

14. [Rates / Ratios]

Simplify the ratio 12 : 16

3:4

20. [Expressions]

Simplify

$$g + g$$

2g

21. [Substitution]

If $d = 7$, find the value of $d + 9$

16

15. [Indices / Square Roots]

Write the product as a power:

$$9 \times 9 \times 9 \times 9 =$$

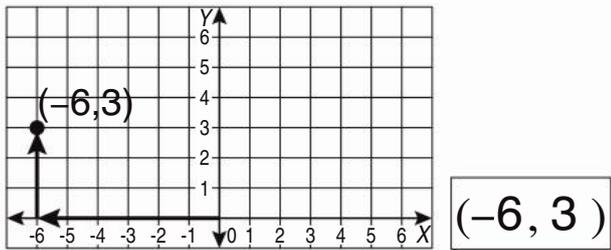
9^4

22. [Equations]

$$8 + 6 = 14$$

23. [Coordinates]

Start at the origin. Move 6 units to the left along the x -axis and then up 3 units. Plot a point. What are the coordinates of the point?

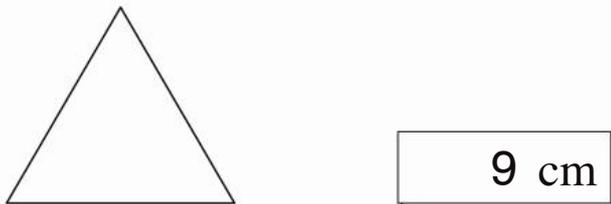


24. [Units of Measurement / Time]

6 hours = **360** minutes

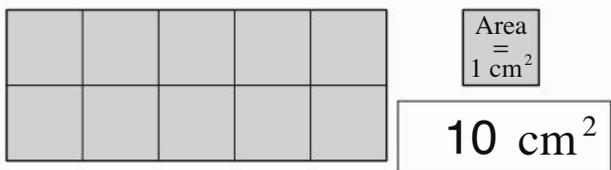
25. [Perimeter]

Use a ruler to find the perimeter of the equilateral triangle in centimetres.



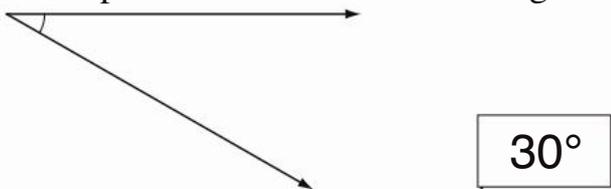
26. [Area / Volume]

Find the area of the rectangle.



27. [Shapes]

Use a protractor to measure this angle.



28. [Location / Transformation]

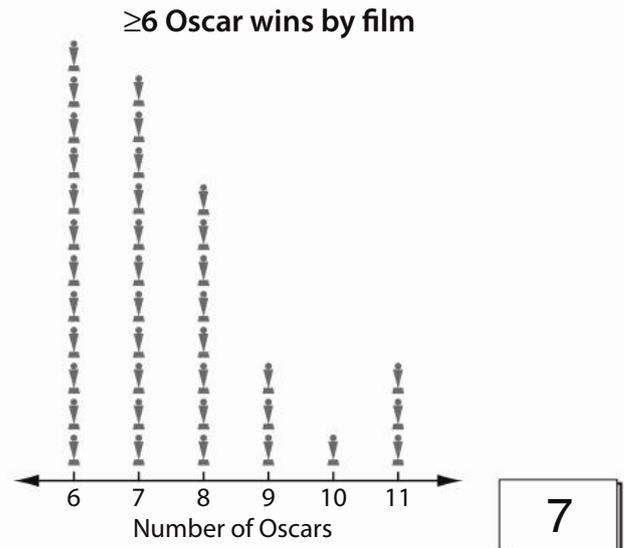
Which of these Italian cities is west of Cremona?



Turin

29. [Statistics]

How many films have won nine or more Oscars?



30. [Probability]

There are 6 toffee, 14 caramel and 8 nut centred chocolates in a box. How many chocolates do you have to pick to make sure you have at least one nut centred chocolate?

21

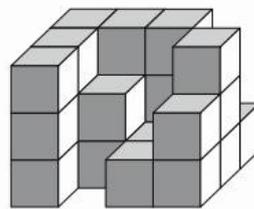
31. [Problem Solving 1]

The digits 2, 4, 7, 8 and 9 are arranged to form even, five-digit numbers. What is the tens digit in the largest of these numbers?

4

32. [Problem Solving 2]

Some cubes have been removed from an array of $4 \times 3 \times 3$. How many cubes remain?



25

33. [Problem Solving 3]

Each of the digits 1 to 9 appears once in the sum below. Fill in the missing digits.

$$\begin{array}{r} \text{OR} \quad \boxed{6} \ 4 \ 2 \\ + \quad \boxed{1} \ \boxed{9} \ 5 \\ \hline \boxed{8} \ \boxed{3} \ \boxed{7} \end{array} \qquad \begin{array}{r} \boxed{1} \ 4 \ 2 \\ + \quad \boxed{6} \ \boxed{9} \ 5 \\ \hline \boxed{8} \ \boxed{3} \ \boxed{7} \end{array}$$

MATHS MATE



Test 1

Covering worksheets

1.1 - 1.4

Name:

1. [+ Whole Numbers to 10]

	8	4	2	7	1	5	10	9	3	6
+ 5	13	9	7	12	6	10	15	14	8	11

2. [- Whole Numbers to 10]

	15	11	17	14	16	10	18	12	19	13
- 10	5	1	7	4	6	0	8	2	9	3

3. [× Whole Numbers to 12]

	1	5	9	6	2	4	10	7	3	8
× 3	3	15	27	18	6	12	30	21	9	24

4. [÷ Whole Numbers to 12]

	10	2	6	16	4	12	20	14	8	18
÷ 2	5	1	3	8	2	6	10	7	4	9

5. [Large Number +, -]

$$\begin{array}{r} 5807 \\ - 2203 \\ \hline \end{array}$$

3604

10. [Fraction ×, ÷]

$$\frac{2}{9} \times 4 =$$

$\frac{8}{9}$

16. [Order of Operations]

$$13 - 9 + 4 =$$

8

6. [Large Number ×, ÷]

$$\frac{25000}{100} =$$

250

11. [Percentages]

Write as a percentage:
82 out of 100.

82%

17. [Exploring Numbers]

Which number is the largest?

- A) 18067
- B) 18706
- C) 18670

B

12. [Decimals / Fractions / Percentages]

What percentage of the shape is shaded?



30%

18. [Multiples / Factors / Primes]

List the common multiples of 3 and 4 up to 40.

12, 24, 36

7. [Decimal +, -]

$$\begin{array}{r} 4.26 \\ + 5.37 \\ \hline \end{array}$$

9.63

13. [Integers]

Which continent has the lowest recorded temperature?

- A) -33°C South America
- B) -68°C Asia
- C) -24°C Africa

B

19. [Number Patterns]

Complete the pattern:

5, 11, 17, 23, 29, **35, 41**

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.3 \\ \times 9 \\ \hline \end{array}$$

2.7

14. [Rates / Ratios]

Simplify the ratio 16 : 24

2 : 3

20. [Expressions]

Simplify
 $e + e$

2e

9. [Fraction +, -]

$$\frac{1}{9} + \frac{4}{9} =$$

$\frac{5}{9}$

15. [Indices / Square Roots]

Write the product as a power:

$$8 \times 8 \times 8 \times 8 \times 8 =$$

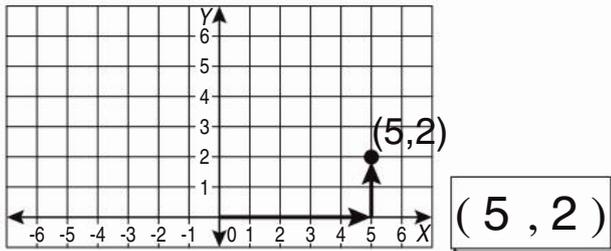
8^5

22. [Equations]

$$8 + \boxed{5} = 13$$

23. [Coordinates]

Start at the origin. Move 5 units to the right along the x -axis and then up 2 units. Plot a point. What are the coordinates of the point?



24. [Units of Measurement / Time]

8 minutes = 480 seconds

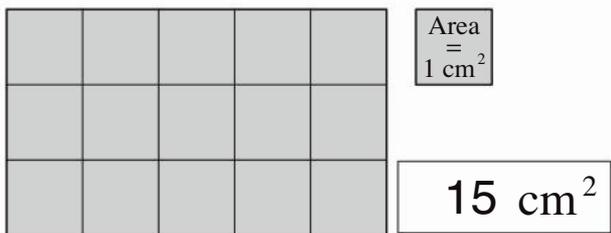
25. [Perimeter]

Use a ruler to find the perimeter of the equilateral triangle in centimetres.



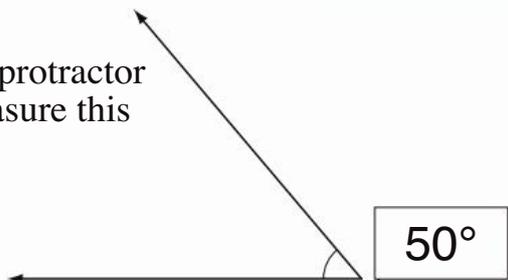
26. [Area / Volume]

Find the area of the rectangle.



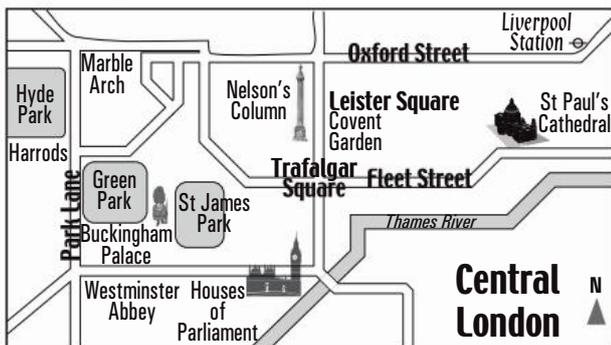
27. [Shapes]

Use a protractor to measure this angle.



28. [Location / Transformation]

Which park is west of Nelson's Column?

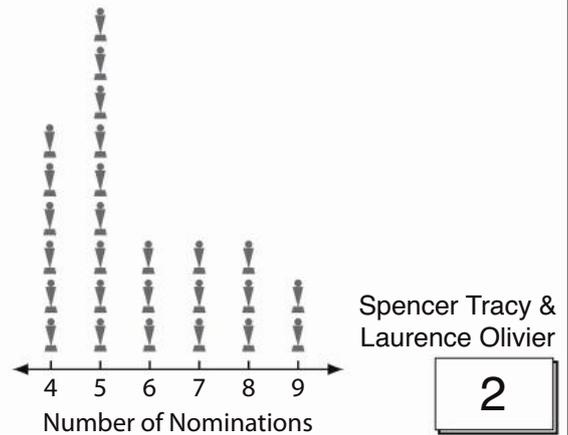


Hyde Park

29. [Statistics]

How many actors have received nine nominations for 'best actor'?

≥4 'Best Actor' Nominations



30. [Probability]

There are 25 blue, 10 red and 15 yellow marbles in a bag. How many marbles do you have to select to make sure you have at least one yellow marble?

36

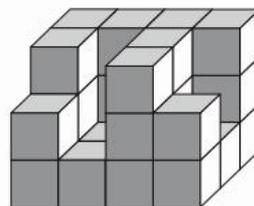
31. [Problem Solving 1]

The digits 1, 3, 6, 7 and 9 are arranged to form odd, five-digit numbers. What is the tens digit in the smallest of these numbers?

7

32. [Problem Solving 2]

Some cubes have been removed from an array of $4 \times 3 \times 3$. How many cubes remain?



28

33. [Problem Solving 3]

Each of the digits 1 to 9 appears once in the sum below. Fill in the missing digits.

$$\begin{array}{r} \text{OR} \quad \boxed{1} \ 6 \ 7 \\ + \quad \boxed{3} \ \boxed{2} \ 8 \\ \hline \boxed{4} \ \boxed{9} \ \boxed{5} \end{array} \quad + \quad \begin{array}{r} \boxed{3} \ 6 \ 7 \\ + \quad \boxed{1} \ \boxed{2} \ 8 \\ \hline \boxed{4} \ \boxed{9} \ \boxed{5} \end{array}$$



Test 2

Covering worksheets

1.5 - 1.8

Name:

1. [+ Whole Numbers to 10]

	12	5	11	9	7	10	3	6	8	4
+ 2	14	7	13	11	9	12	5	8	10	6

2. [- Whole Numbers to 10]

	5	4	8	12	13	6	11	7	10	9
- 3	2	1	5	9	10	3	8	4	7	6

3. [× Whole Numbers to 12]

	3	9	1	8	4	7	2	6	10	5
× 6	18	54	6	48	24	42	12	36	60	30

4. [÷ Whole Numbers to 12]

	11	6	3	7	12	9	10	4	8	5
÷ 1	11	6	3	7	12	9	10	4	8	5

5. [Large Number +, -]

$$\begin{array}{r} 3921 \\ + 4038 \\ \hline \end{array}$$

7959

10. [Fraction ×, ÷]

$$2 \times \frac{3}{4} =$$

1½

16. [Order of Operations]

$$15 - 12 \div 3 =$$

11

6. [Large Number ×, ÷]

$$\begin{array}{r} 126 \\ \times 1000 \\ \hline \end{array}$$

126000

11. [Percentages]

If 81% of butter is fat, what percentage do the remaining components equal?

19%

17. [Exploring Numbers]

What is the value of the underlined digit in the number 7531?

500

12. [Decimals / Fractions / Percentages]

Simplify $\frac{4}{14}$

2/7

18. [Multiples / Factors / Primes]

What is the lowest common multiple (LCM) of 4 and 6?

12

7. [Decimal +, -]

$$\begin{array}{r} 94.6 \\ - 25.3 \\ \hline \end{array}$$

69.3

13. [Integers]

Arrange in ascending order: 8, -5, -1, 2, 9

-5, -1, 2, 8, 9

19. [Number Patterns]

Complete the pattern:

46, 38, 30, 22, **14**, **6**

8. [Decimal ×, ÷]

$$8.3 \times 100 =$$

830

14. [Rates / Ratios]

Simplify the ratio 30 m : 125 m

6:25

20. [Expressions]

Simplify $wx - wx + wx + wx$

2wx

9. [Fraction +, -]

$$\frac{5}{9} + \frac{8}{9} =$$

14/9

15. [Indices / Square Roots]

$$6^2 =$$

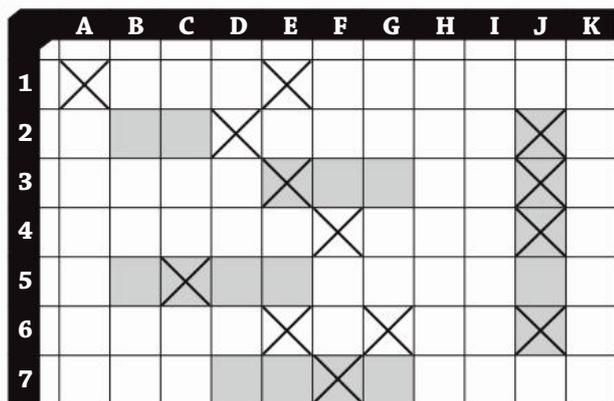
36

22. [Equations]

$$11 - \boxed{6} = 5$$

23. [Coordinates]

At which grid reference will one more enemy hit completely destroy a battleship?



X Enemy hit
 Battleship

J5

24. [Units of Measurement / Time]

60 cm = 600 mm

25. [Perimeter]

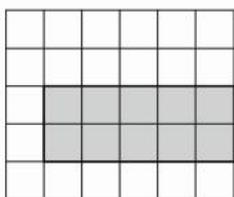
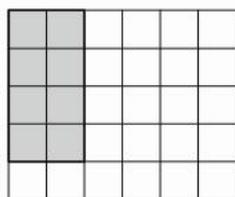
Use a ruler to find the perimeter of the rectangle in millimetres.



110 mm

26. [Area / Volume]

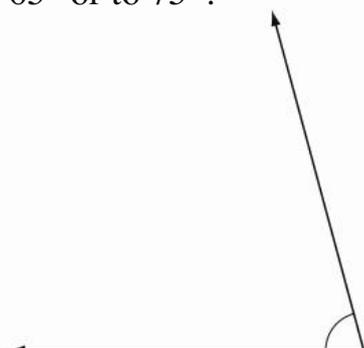
Do these rectangles have the same area?



no

27. [Shapes]

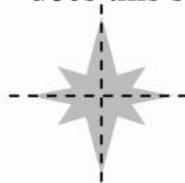
Without measuring, would you estimate that the size of this angle is closer to 65° or to 75°?



75°

28. [Location / Transformation]

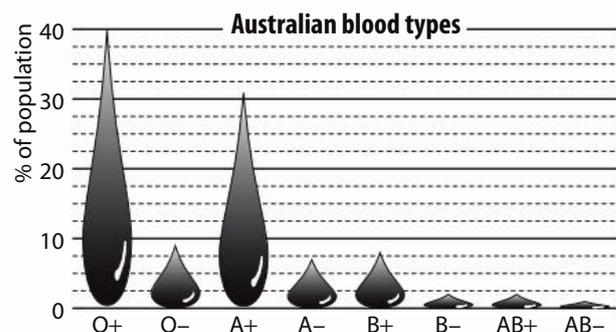
Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



2

29. [Statistics]

Which blood type accounts for about 7% of the Australian population?



A-

30. [Probability]

'In Auckland snow will fall in the mountains in December.'

Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

B

31. [Problem Solving 1]

Five lions are equal in weight to two lions and one giraffe. What fraction of the weight of a giraffe is the weight of a lion?

1/3

32. [Problem Solving 2]

Complete the addition table.

+	21	14	9
7	28	21	16
14	35	28	23
6	27	20	15

33. [Problem Solving 3]

The sum of four consecutive odd numbers is 64. What is the largest of these numbers?

19



Name:

1. [+ Whole Numbers to 10]

	2	9	5	8	3	10	4	6	7	1
+ 3	5	12	8	11	6	13	7	9	10	4

2. [- Whole Numbers to 10]

	4	3	9	6	2	7	10	8	5	11
- 1	3	2	8	5	1	6	9	7	4	10

3. [× Whole Numbers to 12]

	11	5	9	6	10	4	12	7	3	8
× 10	110	50	90	60	100	40	120	70	30	80

4. [÷ Whole Numbers to 12]

	40	56	48	80	64	32	24	72	16	88
÷ 8	5	7	6	10	8	4	3	9	2	11

5. [Large Number +, -]

$$\begin{array}{r} 5126 \\ + 3450 \\ \hline \end{array}$$

8576

10. [Fraction ×, ÷]

$$3 \times \frac{1}{6} =$$

$\frac{1}{2}$

16. [Order of Operations]

$$9 + 7 \times 3 =$$

30

6. [Large Number ×, ÷]

$$\begin{array}{r} 718 \\ \times 1000 \\ \hline \end{array}$$

718000

11. [Percentages]

If 71% of the cultured sour cream is water, what percentage do the remaining components equal?

29%

17. [Exploring Numbers]

What is the value of the underlined digit in the number 14028?

4000

12. [Decimals / Fractions / Percentages]

Simplify $\frac{6}{16}$

$\frac{3}{8}$

18. [Multiples / Factors / Primes]

What is the lowest common multiple (LCM) of 6 and 9?

18

7. [Decimal +, -]

$$\begin{array}{r} 89.5 \\ - 36.7 \\ \hline \end{array}$$

52.8

13. [Integers]

Arrange in ascending order: 8, -3, 0, -2, 4

-3, -2, 0, 4, 8

19. [Number Patterns]

Complete the pattern:

51, 43, 35, 27, **19, 11**

8. [Decimal ×, ÷]

$$4.7 \times 100 =$$

470

20. [Expressions]

Simplify $cd + cd - cd + cd$

2cd

14. [Rates / Ratios]

Simplify the ratio

24 m : 54 m

4:9

21. [Substitution]

If $b = 9$, find the value of $3b$

27

9. [Fraction +, -]

$$\frac{5}{7} + \frac{6}{7} =$$

$1\frac{4}{7}$

15. [Indices / Square Roots]

$$7^2 =$$

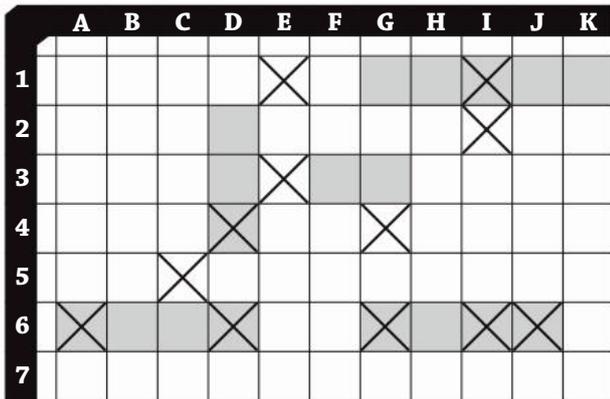
49

22. [Equations]

$$14 - \boxed{5} = 9$$

23. [Coordinates]

At which grid reference will one more enemy hit completely destroy a battleship?



X Enemy hit
 Battleship

H6

24. [Units of Measurement / Time]

9 km = 9000 m

25. [Perimeter]

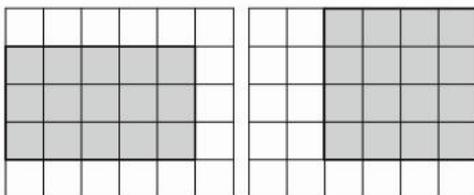
Use a ruler to find the perimeter of the rectangle in millimetres.



150 mm

26. [Area / Volume]

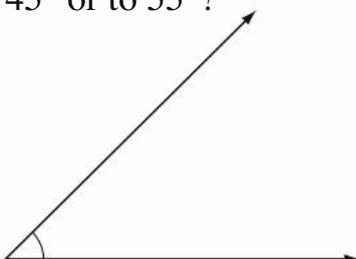
Does the rectangle and the square have the same area?



no

27. [Shapes]

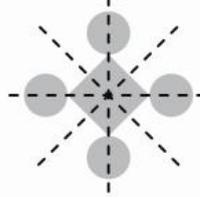
Without measuring, would you estimate that the size of this angle is closer to 45° or to 55°?



45°

28. [Location / Transformation]

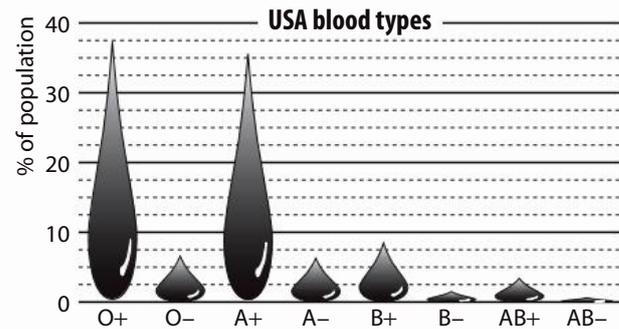
Draw all the axes of symmetry of this shape. How many axes of symmetry does this shape have?



4

29. [Statistics]

Which blood type accounts for about 8% of the USA population?



B+

30. [Probability]

'I will grow to reach 3 metres in height.' Which expression best represents the probability of this event?

- A) impossible
- B) very unlikely
- C) very likely
- D) certain

A

31. [Problem Solving 1]

Six rhinoceros are equal in weight to one elephant and four rhinoceros. What fraction of the weight of an elephant is the weight of a rhinoceros?

$\frac{1}{2}$

32. [Problem Solving 2]

Complete the addition table.

+	13	18	12
8	21	26	20
15	28	33	27
9	22	27	21

33. [Problem Solving 3]

The sum of four consecutive odd numbers is 48. What is the smallest of these numbers?

9

MATHS MATE



Test 3

Covering worksheets

2.1 - 2.4

Name:

1. [+ Whole Numbers to 10]

	3	14	7	10	5	12	6	9	18	11
+ 6	9	20	13	16	11	18	12	15	24	17

2. [- Whole Numbers to 10]

	8	11	14	7	19	5	13	20	12	6
- 2	6	9	12	5	17	3	11	18	10	4

3. [× Whole Numbers to 12]

	11	8	2	10	3	9	4	7	6	5
× 11	121	88	22	110	33	99	44	77	66	55

4. [÷ Whole Numbers to 12]

	48	36	44	40	12	28	32	16	24	20
÷ 4	12	9	11	10	3	7	8	4	6	5

5. [Large Number +,-]

$$\begin{array}{r} 8574 \\ - 3192 \\ \hline \end{array}$$

5382

6. [Large Number ×,+]

$$\begin{array}{r} 82 \\ 3 \overline{) 246} \\ \hline \end{array}$$

7. [Decimal +,-]

$$\begin{array}{r} 13.9 \\ + 6.7 \\ \hline \end{array}$$

20.6

8. [Decimal ×,+]

$$\begin{array}{r} 3.7 \\ \times 4 \\ \hline \end{array}$$

14.8

9. [Fraction +,-]

$$2\frac{2}{7} + \frac{3}{7} =$$

2 $\frac{5}{7}$

10. [Fraction ×,+]

$$\frac{1}{3} \text{ of } \$60 =$$

\$ 20

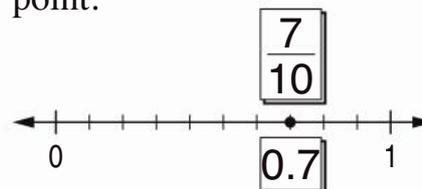
11. [Percentages]

$$25\% \text{ of } 100 =$$

25

12. [Decimals / Fractions / Percentages]

Name the fraction and the decimal at the marked point.



13. [Integers]

Use < or > to make a true statement.

$$2 \quad \boxed{>} \quad -5$$

14. [Rates / Ratios]

A helicopter achieved forward flight at speeds of 300 km/h. At this rate what distance does it travel in two hours?

600 km

15. [Indices / Square Roots]

$$10^1 =$$

10

16. [Order of Operations]

$$16 - 4 - (3 + 5) =$$

4

17. [Exploring Numbers]

What is the value of the underlined digit in the number 1.052?

$$\text{or } \frac{2}{1000} \quad \boxed{0.002}$$

18. [Multiples / Factors / Primes]

Is 4 a factor of 156?

yes

19. [Number Patterns]

Complete the table:

	Lamborghini				
km (city)	16	32	48	<u>64</u>	<u>80</u>
litres	4	8	12	16	20

20. [Expressions]

Simplify $3q + q$

4q

21. [Substitution]

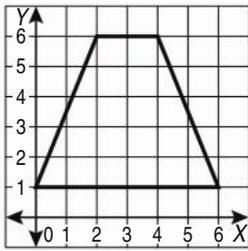
If $a = 3$, find the value of $6a - 5$

13

22. [Equations]

$$4 \times \boxed{7} = 28$$

23. [Coordinates]
Starting at (2,6), draw a line to (4,6) then continue to (6,1), (0,1) and back to (2,6). What shape have you drawn?



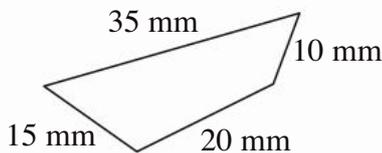
trapezium

24. [Units of Measurement / Time]

2000 g = kg

25. [Perimeter]

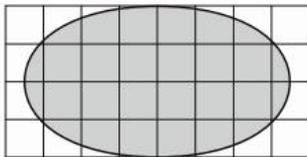
Calculate the perimeter of the quadrilateral.



80 mm

26. [Area / Volume]

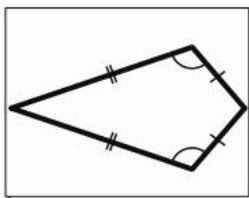
Find the area of the shaded shape.
[Round to the nearest whole number.]



22 sq. units

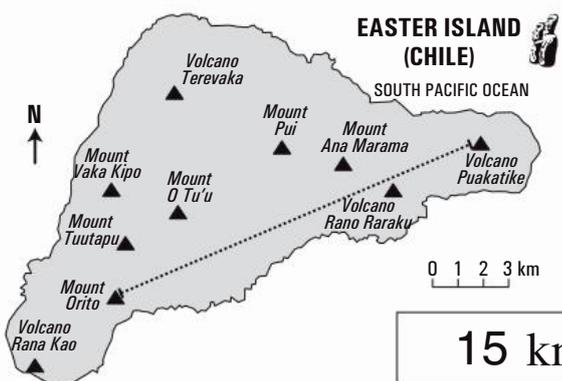
27. [Shapes]

Draw a kite marking the congruent sides and congruent angles.



28. [Location / Transformation]

Using the scale, what is the straight distance between Mount Orito and Volcano Puakatike?



15 km

29. [Statistics]

Which fruit has the lowest water content?

FRUIT	Calories per piece	Water content (%)
Plum	25	85
Pear	45	84
Peach	35	88
Orange	35	87
Nectarine	42	80
Kiwi	34	75
Banana	107	74
Apricot	30	86
Apple	44	84

banana

30. [Probability]

A steak comes well done, medium or rare and is served with vegetables or salad. Find the size of the sample space. [Complete the table.]

Outcomes (sample space)	
well done	vegetables
well done	salad
medium	vegetables
medium	salad
rare	vegetables
rare	salad

6

31. [Problem Solving 1]

Write the missing operations:

$9 + 4$ 2 $4 = 5$

32. [Problem Solving 2]

Two positive numbers have a sum of 16 and a product of 60. Find the two numbers.

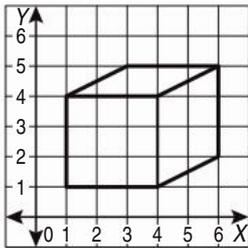
6 and 10

33. [Problem Solving 3]

Fill in the magic square. [Every row, column and diagonal has the same sum.]

10	14	17	5
13	9	6	18
4	16	15	11
19	7	8	12

23. [Coordinates]
Starting at (1,4), draw a line to (3,5) then continue to (6,5), (6,2), (4,1), (1,1), (1,4), (4,4) and (6,5). What shape have you drawn?

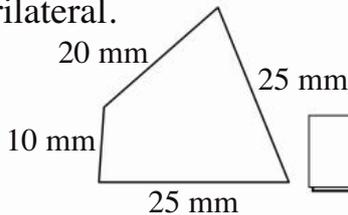


cube

24. [Units of Measurement / Time]

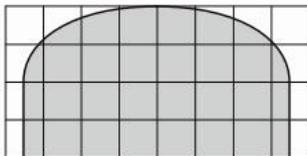
7 kg = **7000** g

25. [Perimeter]
Calculate the perimeter of the quadrilateral.



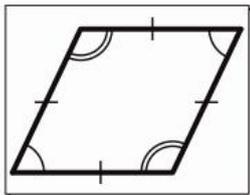
80 mm

26. [Area / Volume]
Find the area of the shaded shape.
[Round to the nearest whole number.]

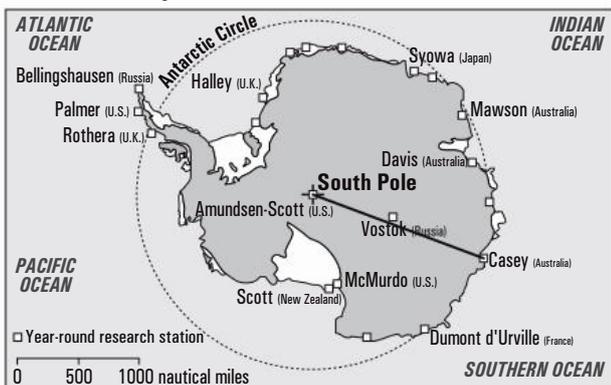


25 sq. units

27. [Shapes]
Draw a rhombus marking the congruent sides and congruent angles.



28. [Location / Transformation]
Using the scale, what is the distance from Casey station to the South Pole?



1500 nautical miles

29. [Statistics]
Which fruit has the most calories per piece?

FRUIT	Calories per piece	Water content (%)
Avocado	150	60
Grapes (100g)	50	82
Grapefruit	100	91
Passionfruit	30	50
Paw Paw	28	70
Mango	40	80
Cantelope	25	90
Pineapple	50	87
Lemon	20	85

avocado

30. [Probability]
Kay may choose art, drama, graphics or music on Tuesday or Wednesday. What is the size of the sample space?

[Complete the table.]

Outcomes (sample space)	
art	Tuesday
art	Wednesday
drama	Tuesday
drama	Wednesday
graphics	Tuesday
graphics	Wednesday
music	Tuesday
music	Wednesday

8

31. [Problem Solving 1]
Write the missing operations:

18 + 3 **×** 4 **÷** 6 = 20

32. [Problem Solving 2]
Two positive numbers have a sum of 8 and a product of 12. Find the two numbers.

2 and 6

33. [Problem Solving 3]
Fill in the magic square.
[Every row, column and diagonal has the same sum.]

1	14	7	12
8	11	2	13
10	5	16	3
15	4	9	6



Name:

1. [+ Whole Numbers to 10]

	6	14	10	8	11	15	12	7	9	13
+ 5	11	19	15	13	16	20	17	12	14	18

2. [- Whole Numbers to 10]

	12	17	14	10	11	18	13	16	9	15
- 8	4	9	6	2	3	10	5	8	1	7

3. [× Whole Numbers to 12]

	5	8	10	6	3	9	11	12	4	7
× 7	35	56	70	42	21	63	77	84	28	49

4. [÷ Whole Numbers to 12]

	18	9	3	15	6	24	30	12	27	21
÷ 3	6	3	1	5	2	8	10	4	9	7

5. [Large Number +, -]

$$\begin{array}{r} 6534 \\ + 2704 \\ \hline \end{array}$$

9238

10. [Fraction ×, ÷]

$$2 \div \frac{1}{3} =$$

6

16. [Order of Operations]

$$7 \times (3 + 7) =$$

70

6. [Large Number ×, ÷]

$$\begin{array}{r} 284 \\ \times 3 \\ \hline \end{array}$$

852

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{10} = \frac{24}{80}$$

seventy-five thousand

17. [Exploring Numbers]

Write the number 75 000 in words.

18. [Multiples / Factors / Primes]

List all the factors of 22 in ascending order.

1, 2, 11, 22

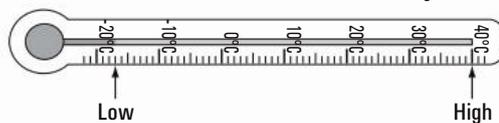
7. [Decimal +, -]

$$\begin{array}{r} 9.04 \\ - 5.87 \\ \hline \end{array}$$

3.17

13. [Integers]

What is the difference between the highest and lowest temperatures recorded in Milan, Italy?



57 °C

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{25}, \frac{1}{5}, 1, 5, \underline{25}, \underline{125}$$

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.07 \\ 8 \overline{) 0.56} \\ \underline{64} \\ 0 \\ \hline \end{array}$$

0.07

14. [Rates / Ratios]

A pigeon flies 250 km in two and a half hours. What is its average speed in kilometres per hour?

100 km/h

20. [Expressions]

Simplify $v + 2v + 2v$

5v

21. [Substitution]

If $y = -3$, find the value of $y - 9$

-12

9. [Fraction +, -]

$$2 - \frac{4}{9} =$$

1 $\frac{5}{9}$

15. [Indices / Square Roots]

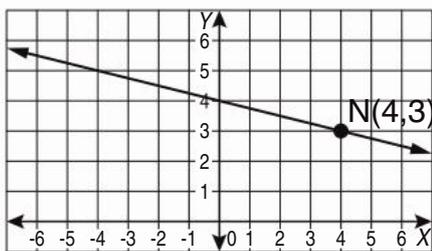
$$\sqrt{4} =$$

2

22. [Equations]

$$\underline{30} - 14 = 16$$

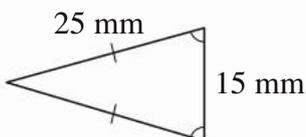
23. [Coordinates]
Which point lies on the line graphed below?
M(-5,4) N(4,3) P(4,0)



N

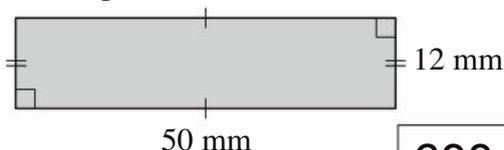
24. [Units of Measurement / Time]
2400 mm = 240 cm

25. [Perimeter]
Calculate the perimeter of the isosceles triangle.



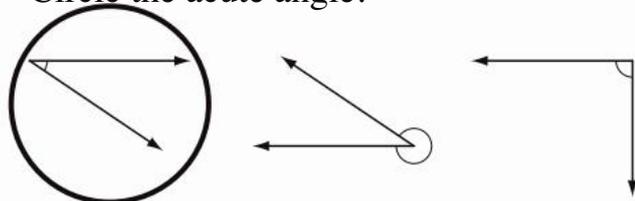
65 mm

26. [Area / Volume]
Using $A = lw$ find the area of the rectangle.



600 mm²

27. [Shapes]
Circle the acute angle.

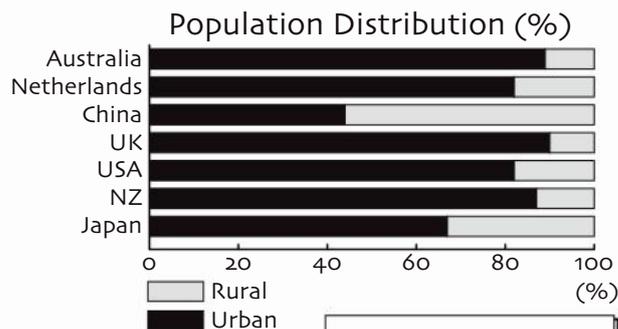


28. [Location / Transformation]
By how many degrees must the big hand of this clock rotate to show exactly 3:30?



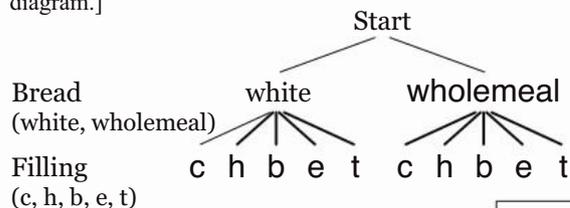
180°

29. [Statistics]
Which of the countries shown has the lowest percentage of rural population?



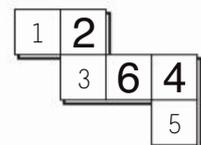
UK

30. [Probability]
Sandwiches can be made using one type of bread (white, wholemeal) and one type of filling (cheese, ham, beef, egg, tomato). How many different types of sandwiches are possible? [Complete the tree diagram.]



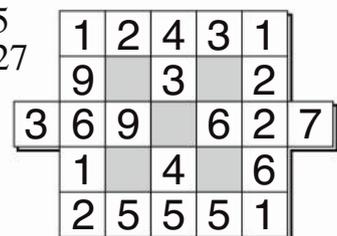
10

31. [Problem Solving 1]
Fill in the spaces so that, when folded, the net will form a standard die.
[On a standard die, opposite sides add to 7]

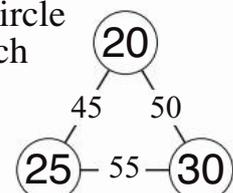


32. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:

2 digits: 43 45
3 digits: 369 627
5 digits: 12261 12431 25551 19612



33. [Problem Solving 3]
Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Name:

1. [+ Whole Numbers to 10]

	9	2	7	10	4	8	1	3	6	5
+ 10	19	12	17	20	14	18	11	13	16	15

2. [- Whole Numbers to 10]

	15	13	11	8	14	12	6	7	10	9
- 5	10	8	6	3	9	7	1	2	5	4

3. [× Whole Numbers to 12]

	12	8	11	5	4	7	9	6	3	10
× 4	48	32	44	20	16	28	36	24	12	40

4. [÷ Whole Numbers to 12]

	55	121	99	66	132	88	33	77	110	44
÷ 11	5	11	9	6	12	8	3	7	10	4

5. [Large Number +, -]

$$\begin{array}{r} 4852 \\ + 3097 \\ \hline \end{array}$$

7949

10. [Fraction ×, ÷]

$$3 \div \frac{1}{4} =$$

12

16. [Order of Operations]

$$4 \times (6 + 5) =$$

44

6. [Large Number ×, ÷]

$$\begin{array}{r} 137 \\ \times 5 \\ \hline \end{array}$$

685

11. [Percentages]

$$10\% \text{ of } \$2.00 =$$

20 ¢

17. [Exploring Numbers]

Write the number 42000 in words.

forty-two thousand

12. [Decimals / Fractions / Percentages]

Complete the equivalent fractions:

$$\frac{3}{4} = \frac{27}{36}$$

18. [Multiples / Factors / Primes]

List all the factors of 21 in ascending order.

1, 3, 7, 21

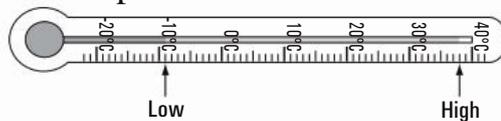
7. [Decimal +, -]

$$\begin{array}{r} 3.58 \\ - 1.59 \\ \hline \end{array}$$

1.99

13. [Integers]

What is the difference between the highest and the lowest temperatures recorded in Hiroshima, Japan?



47°C

19. [Number Patterns]

Complete the pattern:

$$\frac{1}{100}, \frac{1}{10}, 1, 10, \underline{100}, \underline{1000}$$

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.08 \\ 3 \overline{) 0.24} \\ \underline{0.06} \\ 0.04 \\ \underline{0.03} \\ 0.01 \end{array}$$

0.08

14. [Rates / Ratios]

A hummingbird flies 200 km in two and a half hours. What is its average speed in kilometres per hour?

80 km/h

20. [Expressions]

Simplify $3r + 2r + r$

6r

21. [Substitution]

If $x = -5$, find the value of $x - 8$

-13

9. [Fraction +, -]

$$3 - \frac{3}{8} =$$

2 $\frac{5}{8}$

15. [Indices / Square Roots]

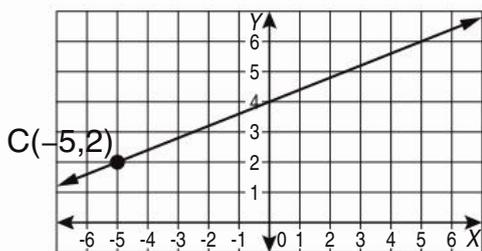
$$\sqrt{16} =$$

4

22. [Equations]

$$\underline{29} - 12 = 17$$

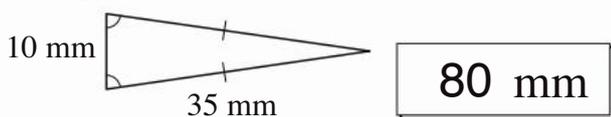
23. [Coordinates]
Which point lies on the line graphed below?
A(0,5) B(3,4) C(-5,2)



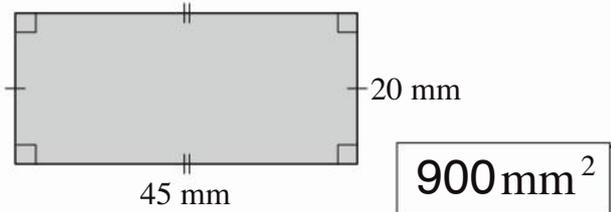
C

24. [Units of Measurement / Time]
16000 m = 16 km

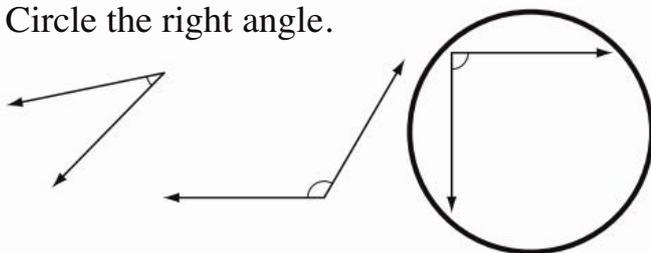
25. [Perimeter]
Calculate the perimeter of the isosceles triangle.



26. [Area / Volume]
Using $A = lw$ find the area of the rectangle.



27. [Shapes]
Circle the right angle.

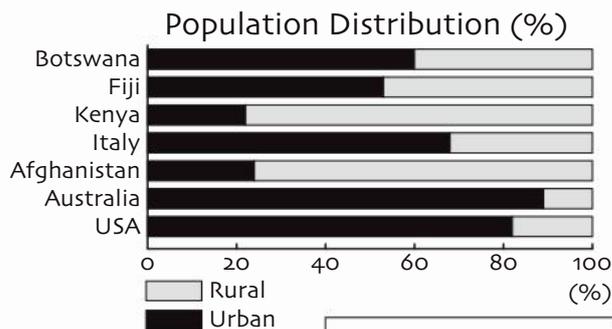


28. [Location / Transformation]
By how many degrees must the big hand of this clock rotate to show exactly 4:45?



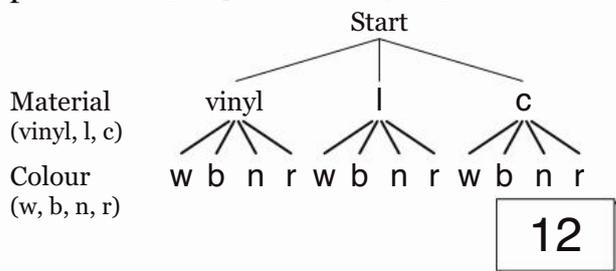
90°

29. [Statistics]
Which of the countries shown has the greatest percentage of rural population?

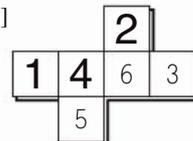


Kenya

30. [Probability]
Handbags come in three materials (vinyl, leather, cloth) and four colours (white, brown, navy, red). How many different types of handbags are possible? [Complete the tree diagram.]

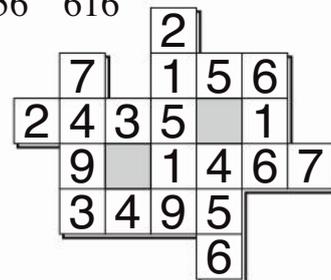


31. [Problem Solving 1]
Fill in the spaces so that, when folded, the net will form a standard die.
[On a standard die, opposite sides add to 7]

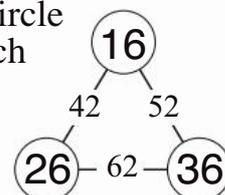


32. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:

- 3 digits: 156 456 616
4 digits: 1467 2435 3495 7493
5 digits: 21519



33. [Problem Solving 3]
Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.



MATHS MATE



Test 5

Covering worksheets

3.1 - 3.4

Name:

1. [+ Whole Numbers to 10]

	15	7	22	8	10	19	21	24	16	3
+ 4	19	11	26	12	14	23	25	28	20	7

2. [- Whole Numbers to 10]

	27	12	10	21	13	16	15	28	9	14
- 7	20	5	3	14	6	9	8	21	2	7

3. [× Whole Numbers to 12]

	4	5	10	8	7	11	3	6	9	12
× 9	36	45	90	72	63	99	27	54	81	108

4. [÷ Whole Numbers to 12]

	64	32	48	96	40	72	88	80	24	56
÷ 8	8	4	6	12	5	9	11	10	3	7

5. [Large Number +,-]

$$\begin{array}{r} 3480 \\ - 3295 \\ \hline \end{array}$$

185

10. [Fraction ×,+]

$$\frac{1}{3} \times \frac{1}{5} =$$

$\frac{1}{15}$

17. [Exploring Numbers]

Round 81 099 to the nearest thousand.

81 000

6. [Large Number ×,+]

$$\begin{array}{r} 642 \\ \times 40 \\ \hline \end{array}$$

25680

11. [Percentages]

40% of 60 =

24

18. [Multiples / Factors / Primes]

What is the highest common factor of 14 and 21?

7

7. [Decimal +,-]

$$\begin{array}{r} 52.86 \\ + 31.4 \\ \hline \end{array}$$

84.26

12. [Decimals / Fractions / Percentages]

Write 0.5 as a percentage.

50%

19. [Number Patterns]

Complete the pattern:

192, 96, 48, 24, 12, 6, 3

7. [Decimal +,-]

$$\begin{array}{r} 52.86 \\ + 31.4 \\ \hline \end{array}$$

84.26

13. [Integers]

The city of New Orleans ranges in elevation from 8 m to -2 m. What is the difference in height?

10 m

20. [Expressions]

Write as an expression:
The sum of y and thirty

$y + 30$

8. [Decimal ×,+]

$$\begin{array}{r} 12.04 \\ \times 7 \\ \hline \end{array}$$

84.28

14. [Rates / Ratios]

Simplify the ratio

15 : 6 : 21

5 : 2 : 7

21. [Substitution]

If $d = 14$ and $e = 8$, find the value of $d + e$

22

9. [Fraction +,-]

$$\frac{8}{9} - \frac{5}{9} =$$

$\frac{1}{3}$

16. [Order of Operations]

$8 + 5 - 3 \times 1 =$

10

22. [Equations]

$\frac{1}{2}$ of 18 = 9

23. [Coordinates]

Complete the table for this rule:

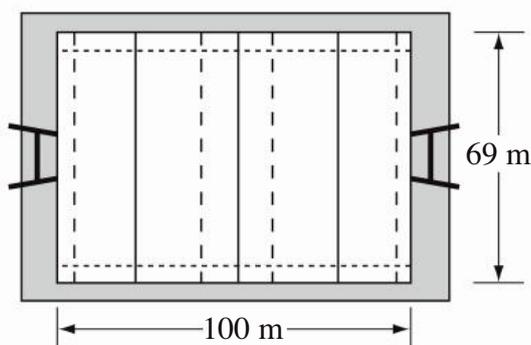
Number of fruit servings (x)	Number of calories ($70x$)
1	$70 \times 1 = 70$
2	$70 \times 2 = 140$
3	$70 \times 3 = 210$
4	$70 \times 4 = 280$
5	$70 \times 5 = 350$
6	$70 \times 6 = 420$

24. [Units of Measurement / Time]

6000 mL = 6 L

25. [Perimeter]

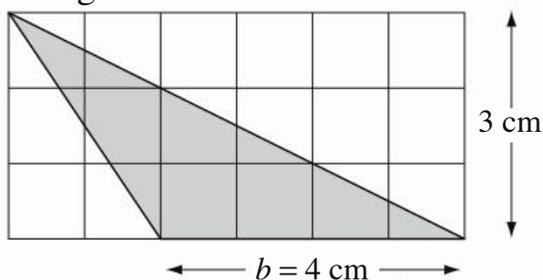
What is the perimeter of the rectangular Rugby Union pitch?



338 m

26. [Area / Volume]

Using $A = \frac{1}{2}bh$ find the area of the triangle.



6 cm²

27. [Shapes]

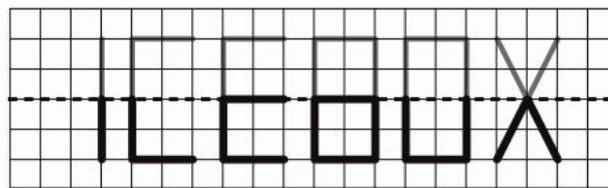
I am a 2-dimensional shape with four sides. I have only one pair of opposite sides parallel. What am I?

- A) a rectangle B) a trapezium
C) a rhombus D) a kite

B

28. [Location / Transformation]

Redraw this diagram after reflecting it in the horizontal dotted line.



29. [Statistics]

This table shows the number of petals on some flower species. Find the median and range of the data.

	Number of petals					
Iris	Fuschia	Wildrose	Columbine	Narcissus	Marigold	Cineraria
3	4	5	5	6	13	13

median = 5 range = 10

30. [Probability]

When the spinner is spun once, what is the probability of stopping on yellow (Y)? [Give your answer as a fraction in simplest form.]



$\frac{1}{3}$

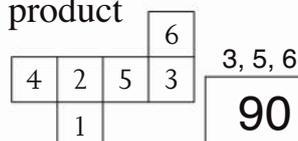
31. [Problem Solving 1]

The sum of four consecutive whole numbers is 42. What are the four numbers?

9, 10, 11, 12

32. [Problem Solving 2]

This net can be folded to form a cube. The numbers on the three faces meeting at any vertex can be multiplied together. What is the largest product for the vertices of this cube?



3, 5, 6

90

33. [Problem Solving 3]

Deduce the 3-digit secret number.

[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	1 2 7	-	1
2nd	3 1 4	-	1
3rd	5 3 2	3	-

325



Test 5

Covering worksheets

3.1 - 3.4

Name:

1. [+ Whole Numbers to 10]

	15	9	12	13	21	18	4	17	20	6
+ 9	24	18	21	22	30	27	13	26	29	15

2. [- Whole Numbers to 10]

	15	8	10	26	13	19	21	12	24	17
- 6	9	2	4	20	7	13	15	6	18	11

3. [× Whole Numbers to 12]

	12	3	8	11	6	9	4	7	5	10
× 11	132	33	88	121	66	99	44	77	55	110

4. [+ Whole Numbers to 12]

	49	42	35	84	7	56	28	63	70	21
÷ 7	7	6	5	12	1	8	4	9	10	3

5. [Large Number +,-]

$$\begin{array}{r} 6701 \\ - 4850 \\ \hline \end{array}$$

1851

10. [Fraction ×,+]

$$\frac{1}{5} \times \frac{1}{6} =$$

$\frac{1}{30}$

17. [Exploring Numbers]

Round 45 800 to the nearest thousand.

46 000

6. [Large Number ×,+]

$$\begin{array}{r} 573 \\ \times 20 \\ \hline \end{array}$$

11460

11. [Percentages]

20% of 90 =

18

18. [Multiples / Factors / Primes]

What is the highest common factor of 12 and 30?

6

7. [Decimal +,-]

$$\begin{array}{r} 42.6 \\ + 23.98 \\ \hline \end{array}$$

66.58

12. [Decimals / Fractions / Percentages]

Write 0.3 as a percentage.

30%

19. [Number Patterns]

Complete the pattern:

320, 160, 80, 40, 20, **10**, **5**

8. [Decimal ×,+]

$$\begin{array}{r} 13.06 \\ \times 4 \\ \hline \end{array}$$

52.24

13. [Integers]

In Queenstown the highest recorded temperature is 34°C and the lowest is -8°C. What is the temperature range?

42 °C

20. [Expressions]

Write as an expression:
The product of eight and p

$8p$

or $8 \times p$

14. [Rates / Ratios]

Simplify the ratio

8 : 20 : 16 **2 : 5 : 4**

21. [Substitution]

If $p = 16$ and $q = 9$, find the value of $p + q$

25

15. [Indices / Square Roots]

$$\sqrt{49} =$$

7

9. [Fraction +,-]

$$\frac{7}{10} - \frac{3}{10} = \frac{2}{5}$$

16. [Order of Operations]

$$8 - 9 \div 3 + 1 = \mathbf{6}$$

22. [Equations]

$$\frac{1}{5} \text{ of } \mathbf{40} = 8$$

23. [Coordinates]

Complete the table for this rule:

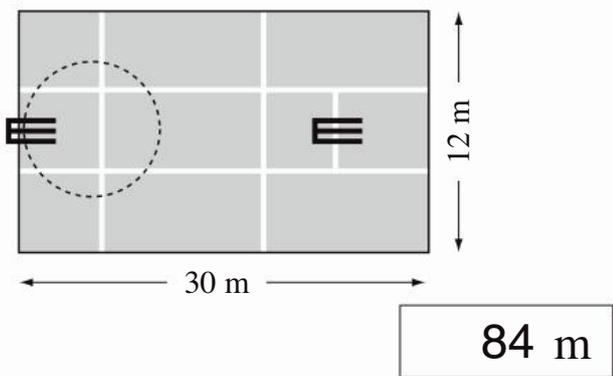
No. of rows (x)	Number of seats ($30x$)
1	$30 \times 1 = 30$
2	$30 \times 2 = 60$
3	$30 \times 3 = 90$
4	$30 \times 4 = 120$
5	$30 \times 5 = 150$
6	$30 \times 6 = 180$

24. [Units of Measurement / Time]

4 L = 4000 mL

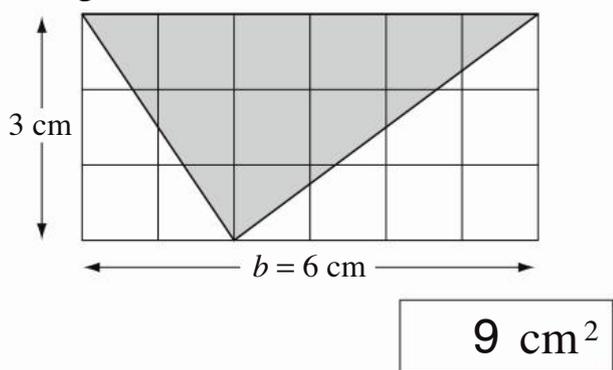
25. [Perimeter]

What is the perimeter of the rectangular indoor cricket court?



26. [Area / Volume]

Using $A = \frac{1}{2}bh$ find the area of the triangle.



27. [Shapes]

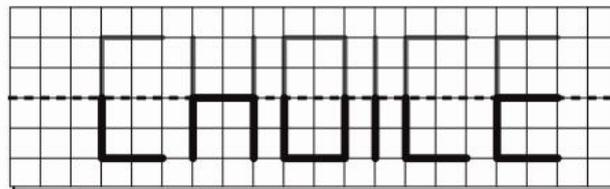
I am a 2-dimensional shape with four sides. Both my pairs of opposite sides are parallel. None of my angles is 90° . What am I?

- A) a rectangle B) a trapezium
C) a parallelogram D) a kite

C

28. [Location / Transformation]

Redraw this diagram after reflecting it in the horizontal dotted line.



29. [Statistics]

This table shows the number of petals on some flower species. Find the median and range of the data.

Number of petals

Lily	Larkspur	Buttercup	Amaryllis	Crocus	Delphinium	Aster
3	5	5	6	6	8	21

median = 6 range = 18

30. [Probability]

When the spinner is spun once, what is the probability of stopping on green (G)? [Give your answer as a fraction in simplest form.]



$\frac{1}{2}$

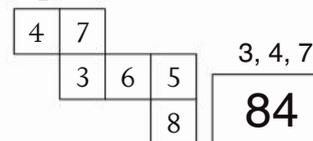
31. [Problem Solving 1]

The sum of five consecutive whole numbers is 25. What are the five numbers?

3, 4, 5, 6, 7

32. [Problem Solving 2]

This net can be folded to form a cube. The numbers on the three faces meeting at any vertex can be multiplied together. What is the smallest product for the vertices of this cube?



84

33. [Problem Solving 3]

Deduce the 3-digit secret number.

[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	2 3 5	-	1
2nd	4 2 5	-	1
3rd	6 4 3	3	-

436



Name:

1. [+ Whole Numbers to 10]

	23	19	4	15	18	20	11	6	17	22
+ 7	30	26	11	22	25	27	18	13	24	29

2. [- Whole Numbers to 10]

	16	28	19	30	11	7	22	13	25	14
- 4	12	24	15	26	7	3	18	9	21	10

3. [× Whole Numbers to 12]

	12	9	3	10	4	5	7	8	11	6
× 8	96	72	24	80	32	40	56	64	88	48

4. [÷ Whole Numbers to 12]

	30	60	48	66	36	54	72	18	24	42
÷ 6	5	10	8	11	6	9	12	3	4	7

5. [Large Number +, -]

$$\begin{array}{r} 7059 \\ + 4832 \\ \hline \end{array}$$

11891

6. [Large Number ×, ÷]

$$\begin{array}{r} 602 \\ \times 24 \\ \hline 2408 \\ 12040 \\ \hline \end{array}$$

14448

7. [Decimal +, -]

$$\begin{array}{r} 40.63 \\ - 15.8 \\ \hline \end{array}$$

24.83

8. [Decimal ×, ÷]

$$\begin{array}{r} 2.3 \\ 7 \overline{) 16.1} \end{array}$$

9. [Fraction +, -]

$$3\frac{4}{11} + \frac{9}{11} = 4\frac{2}{11}$$

10. [Fraction ×, ÷]

$$\frac{1}{3} \div 5 =$$

$\frac{1}{15}$

11. [Percentages]

In a store a \$200 smart phone is marked '20% off'. What is the sale price of the phone?

\$160

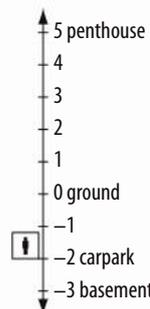
12. [Decimals / Fractions / Percentages]

Change $\frac{2}{5}$ to a decimal.

0.4

13. [Integers]

From the carpark Abdul rides the elevator up 7 levels and down 5. At which level is Abdul now?



ground

14. [Rates / Ratios]

Which ratio is equivalent to 3 : 8?

- A) 3 : 4
- B) 9 : 64
- C) 9 : 24

C

15. [Indices / Square Roots]

$$70^2 =$$

4900

16. [Order of Operations]

$$20 - 16 \div (1 + 3) =$$

16

17. [Exploring Numbers]

Place in ascending order: 0.37, 0.037, 0.703, 0.07

0.037, 0.07, 0.37, 0.703

18. [Multiples / Factors / Primes]

List all the prime numbers between 6 and 18.

7, 11, 13, 17

19. [Number Patterns]

Complete the pattern:

3, 4, 6, 7, 9, **10, 12**

20. [Expressions]

Choose the like terms:

$3f, 3g, f$

$3f, f$

21. [Substitution]

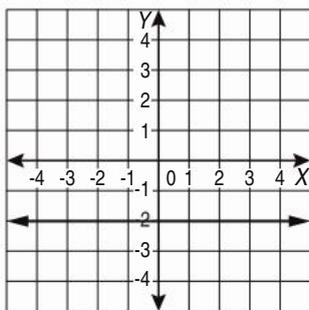
If $d = 3$ and $e = 4$, find the value of $d + e - 6$

1

22. [Equations]

$$\frac{2}{5} \text{ of } \mathbf{15} = 6$$

23. [Coordinates]



The line above shows:

- A) All points where $x = -2$
- B) All points where $y = -2$
- C) All points where $y = x - 2$

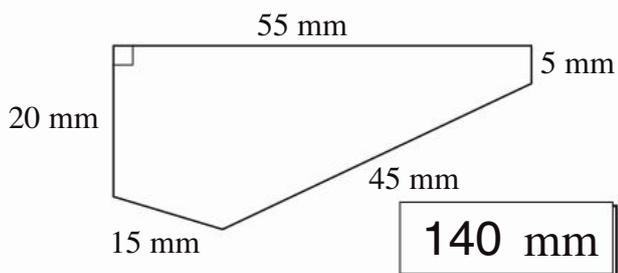
B

24. [Units of Measurement / Time]

300 s = **5** min

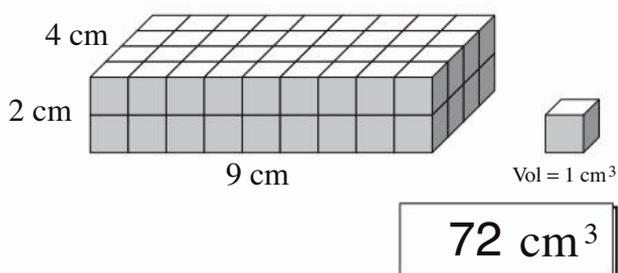
25. [Perimeter]

Calculate the perimeter of the polygon.



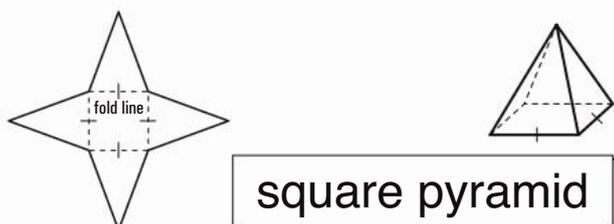
26. [Area / Volume]

Using Volume = length \times width \times height, find the volume of the rectangular prism.



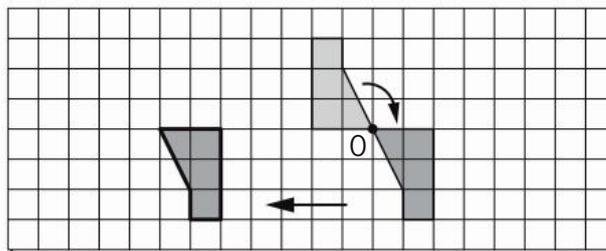
27. [Shapes]

What 3-dimensional shape can this net be used to make?



28. [Location / Transformation]

Redraw this shape after rotating it 180° about the point O and then translating it 7 units left.



29. [Statistics]

In which of the years shown below did the unemployment rate in Australia first reach 5%?



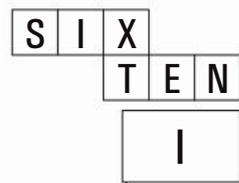
30. [Probability]

A bag contains 6 white, 2 black and 10 green marbles. If a marble is selected at random, find the probability that it is a green marble. [Give your answer as a fraction in simplest form.]

$\frac{5}{9}$

31. [Problem Solving 1]

If this net was folded to form a cube, which letter will be opposite the letter E?



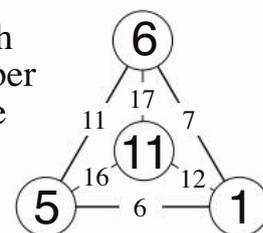
32. [Problem Solving 2]

The school concert raised \$1360 from the sale of 400 tickets. If adult tickets cost \$5 and student tickets \$3, how many student tickets were sold?

320

33. [Problem Solving 3]

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.





Test 6

Covering worksheets

3.5 - 3.8

Name:

1. [+ Whole Numbers to 10]

	21	16	7	19	22	18	15	4	13	20
+ 8	29	24	15	27	30	26	23	12	21	28

2. [- Whole Numbers to 10]

	25	14	29	18	27	22	13	10	21	16
- 9	16	5	20	9	18	13	4	1	12	7

3. [× Whole Numbers to 12]

	9	10	8	4	12	5	11	7	3	6
× 4	36	40	32	16	48	20	44	28	12	24

4. [÷ Whole Numbers to 12]

	132	108	96	36	60	48	144	72	120	84
÷ 12	11	9	8	3	5	4	12	6	10	7

5. [Large Number +, -]

$$\begin{array}{r} 5146 \\ + 9738 \\ \hline \end{array}$$

14884

10. [Fraction ×, ÷]

$$\frac{1}{4} \div 3 =$$

$\frac{1}{12}$

15. [Indices / Square Roots]

$$50^2 =$$

2500

6. [Large Number ×, ÷]

$$\begin{array}{r} 403 \\ \times 35 \\ \hline 2015 \\ 12090 \\ \hline \end{array}$$

14105

11. [Percentages]

In a store a \$140 bicycle is marked '10% off'. What is the sale price of the bicycle?

\$126

16. [Order of Operations]

$$6 + 27 \div (7 - 4) =$$

15

17. [Exploring Numbers]

Place in descending order: 0.19, 0.09, 0.91, 0.091

0.91, 0.19, 0.091, 0.09

7. [Decimal +, -]

$$\begin{array}{r} 32.54 \\ - 13.8 \\ \hline \end{array}$$

18.74

12. [Decimals / Fractions / Percentages]

Change $\frac{3}{5}$ to a decimal.

0.6

18. [Multiples / Factors / Primes]

List all the prime numbers between 10 and 20.

11, 13, 17, 19

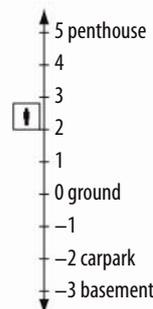
8. [Decimal ×, ÷]

$$\begin{array}{r} 2.5 \\ 9 \overline{) 22.5} \\ \underline{18} \\ 4 \\ \underline{36} \\ 0 \end{array}$$

2.5

13. [Integers]

From level 2 Cherie rides the elevator up 3 levels and down 7. At which level is Cherie now?



carpark

19. [Number Patterns]

Complete the pattern:

4, 6, 9, 11, 14, **16, 19**

20. [Expressions]

Choose the like terms:

$2j, j, k$

$2j, j$

9. [Fraction +, -]

$$2\frac{14}{15} + \frac{3}{15} = 3\frac{2}{15}$$

$3\frac{2}{15}$

14. [Rates / Ratios]

Which ratio is equivalent to 5 : 9?

- A) 10 : 18
B) 25 : 81
C) 30 : 45

A

21. [Substitution]

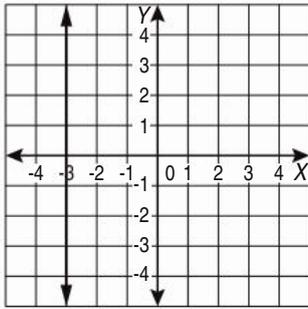
If $b = 6$ and $c = 7$, find the value of $b + c - 4$

9

22. [Equations]

$$\frac{2}{7} \text{ of } \mathbf{21} = 6$$

23. [Coordinates]



The line above shows:

- A) All points where $x = -3$
- B) All points where $y = -3$
- C) All points where $y = x - 3$

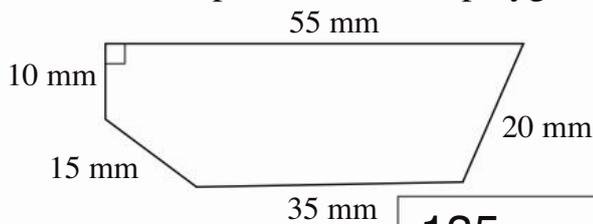
A

24. [Units of Measurement / Time]

6 weeks = 42 days

25. [Perimeter]

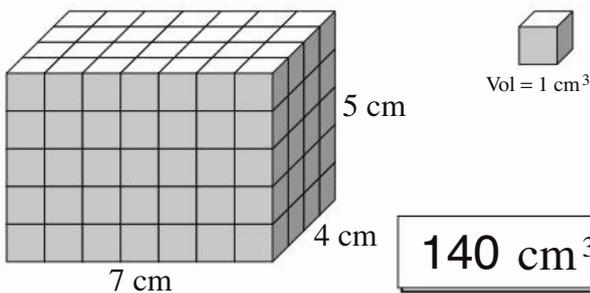
Calculate the perimeter of the polygon.



135 mm

26. [Area / Volume]

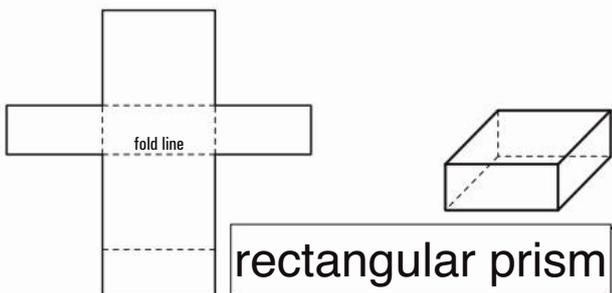
Using $\text{Volume} = \text{length} \times \text{width} \times \text{height}$, find the volume of the rectangular prism.



140 cm³

27. [Shapes]

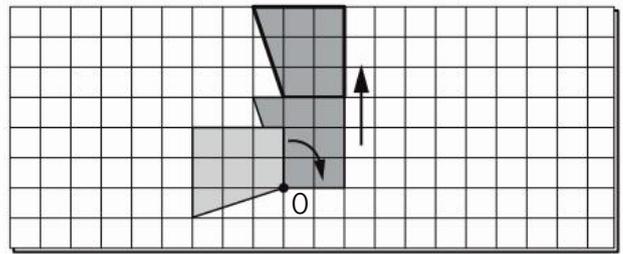
What 3-dimensional shape can this net be used to make?



rectangular prism

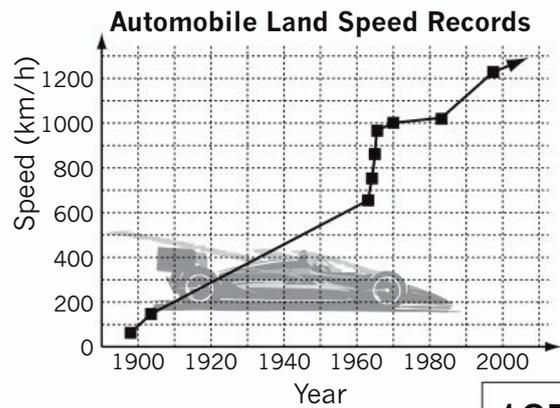
28. [Location / Transformation]

Redraw this trapezium after rotating it 90° clockwise about point O and then translating it 3 units up.



29. [Statistics]

In which year did the automobile land speed record reach 1000 km/h?



1970

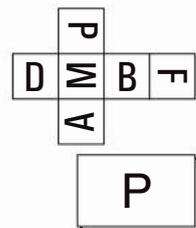
30. [Probability]

A bag contains 15 red and 30 blue raffle tickets. If a ticket is randomly selected from the bag, what is the probability of selecting a blue ticket? [Give your answer as a fraction in simplest form.]

$\frac{2}{3}$

31. [Problem Solving 1]

The net shown is folded to form a cube with **B** on the base. Which of the letters on the four vertical sides will not be the right way up?



P

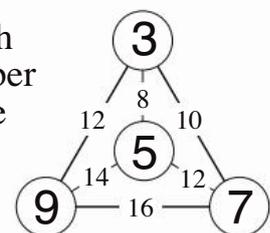
32. [Problem Solving 2]

A shop sells lollies for 60 cents and 10 cents each. Po spent \$7.40 and bought 24 lollies. How many 60 cent lollies did she buy?

10

33. [Problem Solving 3]

Enter a number in each circle so that the number on each line equals the sum of the numbers at each end.



MATHS MATE



Test 7

Covering worksheets

4.1 - 4.4

Name:

1. [+ Whole Numbers to 10]

	15	8	27	11	24	19	42	36	13	20
+ 5	20	13	32	16	29	24	47	41	18	25

2. [- Whole Numbers to 10]

	49	12	28	45	27	33	40	16	31	44
- 8	41	4	20	37	19	25	32	8	23	36

3. [× Whole Numbers to 12]

	12	4	11	3	7	9	8	6	10	5
× 6	72	24	66	18	42	54	48	36	60	30

4. [÷ Whole Numbers to 12]

	72	36	99	45	108	81	90	63	54	27
÷ 9	8	4	11	5	12	9	10	7	6	3

5. [Large Number +, -]

$$\begin{array}{r} 53000 \\ - 249 \\ \hline \end{array}$$

52751

10. [Fraction ×, ÷]

$$\frac{2}{5} \times \frac{1}{2} =$$

$\frac{1}{5}$

17. [Exploring Numbers]

Round 0.26 to one decimal place.

0.3

6. [Large Number ×, ÷]

$$\frac{48000}{300} =$$

160

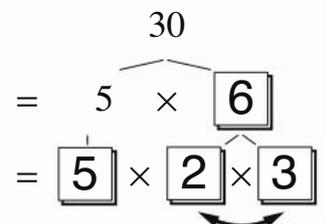
11. [Percentages]

12.5% of 400 =

50

18. [Multiples / Factors / Primes]

Express 30 as a product of prime numbers by completing the factor tree.



12. [Decimals / Fractions / Percentages]

Change $\frac{34}{50}$ to a percentage.

68%

7. [Decimal +, -]

$$\begin{array}{r} 5.38 \\ 97.4 \\ + 6.7 \\ \hline \end{array}$$

109.48

13. [Integers]

Rafael had \$150. He spent \$650. What is Rafael's bank balance?

-\$500

19. [Number Patterns]

Complete the pattern:

25, 23, 19, 17, 13, **11, 7**

8. [Decimal ×, ÷] *

$$47.1 \div 100 =$$

0.471

14. [Rates / Ratios]

Which is cheaper per square metre?

- A) \$12 for 15 m²
B) \$18 for 25 m²

B

20. [Expressions]

Simplify $b + c + c + c$

$b + 3c$

9. [Fraction +, -]

$$\frac{2}{3} - \frac{2}{9} =$$

$\frac{4}{9}$

15. [Indices / Square Roots]

$$\sqrt{900} =$$

30

21. [Substitution]

Use $P = 6l$ to find the perimeter (P) of a regular hexagon where $l = 14$

84

16. [Order of Operations]

$$4 + (12 \div 3 - 2) =$$

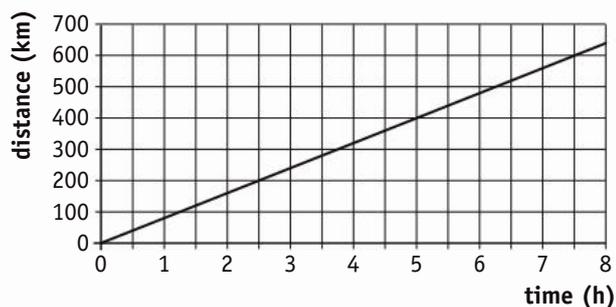
6

22. [Equations]

$$5 + 2 \times \boxed{10} = 25$$

23. [Coordinates]

This graph shows the distance travelled by a car over an 8-hour period. How long does the car take to travel 600 km?



7.5 h

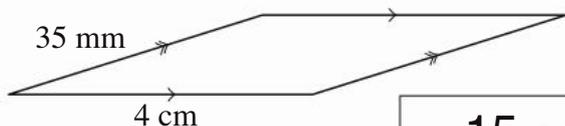
24. [Units of Measurement / Time]

The largest fish in the world is the whale shark with specimens recorded at 12.65 m. Express this in centimetres.

1265 cm

25. [Perimeter]

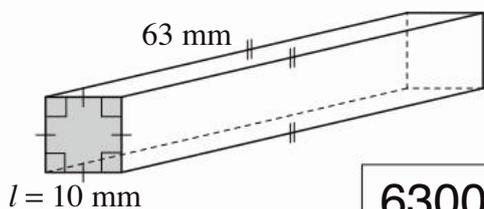
Express all measurements in centimetres and then find the perimeter of the parallelogram.



15 cm

26. [Area / Volume]

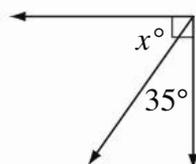
Using $V = l^2h$ find the volume of the square prism.



6300 mm³

27. [Shapes]

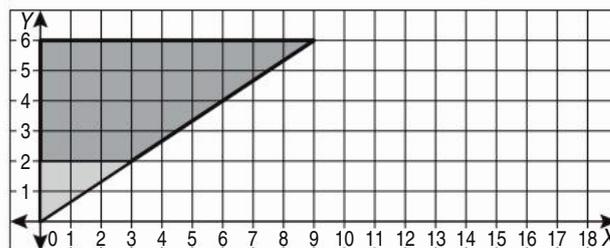
Find the value of x° .



55°

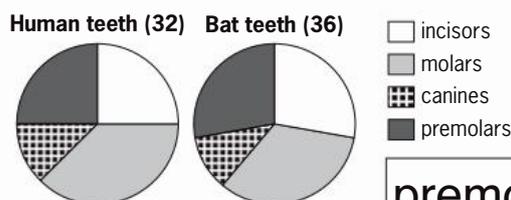
28. [Location / Transformation]

Redraw the triangle after multiplying the coordinates of its vertices by 3.



29. [Statistics]

Bats have more incisors than humans. Which other type of tooth do bats also have more of?

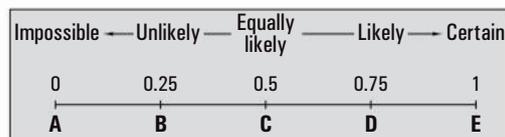


premolars

30. [Probability]

'A spinner equally divided in four and numbered 1 to 4 is spun, and 2 is obtained.'

Which letter A to E best represents the probability of the event?



B

31. [Problem Solving 1]

Two different views are shown of a pair of identical dice, each numbered 1 to 6. Which number is opposite the number 4? [Note: Though identical, the dice are not regular in that opposite sides may not add to 7.]

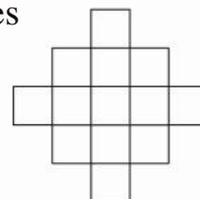


1

32. [Problem Solving 2]

How many squares are there in the diagram?

[Hint: There are more than 13!]



18

33. [Problem Solving 3]

All queen bed sheets are the same price. Which deal is cheaper per sheet?

- A) Buy 2 sheets and get 15% off
- B) Buy 3 sheets and save 20%

B

MATHS MATE



Test 7

Covering worksheets

4.1 - 4.4

Name:

1. [+ Whole Numbers to 10]

	26	37	15	19	8	44	32	11	40	3
+ 4	30	41	19	23	12	48	36	15	44	7

2. [- Whole Numbers to 10]

	40	33	28	19	25	37	12	44	16	31
- 10	30	23	18	9	15	27	2	34	6	21

3. [× Whole Numbers to 12]

	2	8	7	6	1	4	5	9	3	10
× 7	14	56	49	42	7	28	35	63	21	70

4. [÷ Whole Numbers to 12]

	15	45	20	35	40	25	55	30	10	50
÷ 5	3	9	4	7	8	5	11	6	2	10

5. [Large Number +, -]

$$\begin{array}{r} 76000 \\ - 857 \\ \hline \end{array}$$

75143

10. [Fraction ×, ÷]

$$\frac{5}{8} \times \frac{3}{5} =$$

$\frac{3}{8}$

17. [Exploring Numbers]

Round 4.87 to one decimal place.

4.9

6. [Large Number ×, ÷]

$$\frac{65000}{500} =$$

130

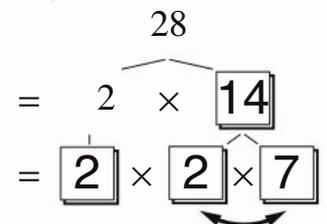
11. [Percentages]

1% of 400 =

4

18. [Multiples / Factors / Primes]

Express 28 as a product of prime numbers by completing the factor tree.



7. [Decimal +, -]

$$\begin{array}{r} 8.4 \\ 65.3 \\ + 0.51 \\ \hline \end{array}$$

74.21

13. [Integers]

Tully had \$350. She spent \$550. What is Tully's bank balance?

-\$200

19. [Number Patterns]

Complete the pattern:

16, 15, 12, 11, 8, **7, 4**

8. [Decimal ×, ÷] *

$$78.6 \div 100 =$$

0.786

14. [Rates / Ratios]

Which is cheaper per square centimetre?

- A) \$60 for 50 cm²
B) \$25 for 20 cm²

A

20. [Expressions]

Simplify $j + j + k$

2j + k

9. [Fraction +, -]

$$\frac{5}{6} - \frac{2}{3} =$$

$\frac{1}{6}$

15. [Indices / Square Roots]

$$\sqrt{400} =$$

20

21. [Substitution]

Use $P = 4l$ to find the perimeter (P) of a square where $l = 15$

60

16. [Order of Operations]

$$(9 - 2 \times 3) + 7 =$$

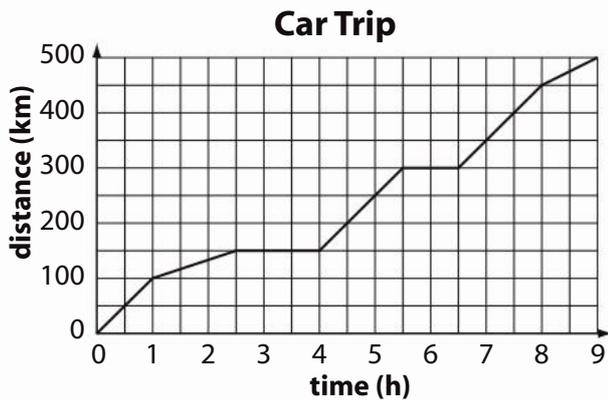
10

22. [Equations]

$$4 + 4 \times \mathbf{3} = 16$$

23. [Coordinates]

This graph shows the distance travelled by a car over a 9-hour period. How long does the car take to travel 200 km?



4.5 h

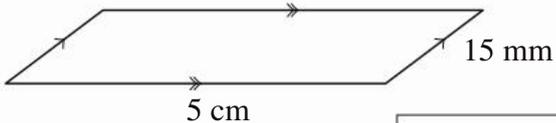
24. [Units of Measurement / Time]

The tallest mammal is the adult male giraffe. It can reach 5 m in height. Express this height in centimetres.

500 cm

25. [Perimeter]

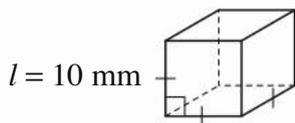
Express all measurements in centimetres and then find the perimeter of the parallelogram.



13 cm

26. [Area / Volume]

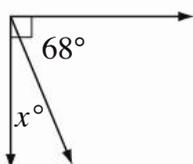
Using $V = l^3$ find the volume of the cube.



1000 mm³

27. [Shapes]

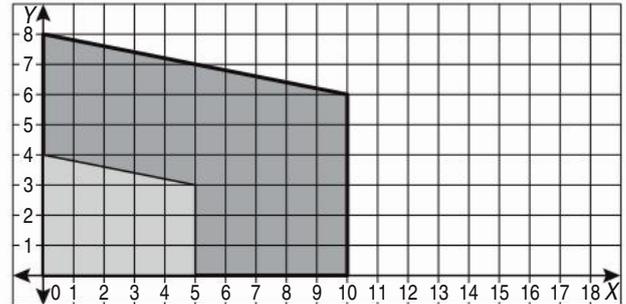
Find the value of x° .



22°

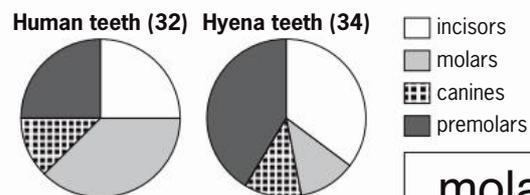
28. [Location / Transformation]

Redraw the trapezium after doubling the coordinates of its vertices.



29. [Statistics]

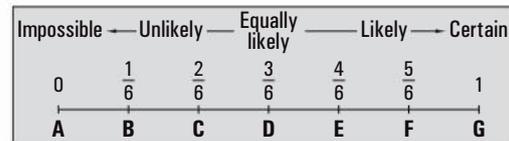
The number of canine teeth in humans and hyenas is similar. What type of tooth do hyenas have less of?



molars

30. [Probability]

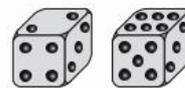
'A three comes up when a die is rolled.' Which letter A to G best represents the probability of the event?



B

31. [Problem Solving 1]

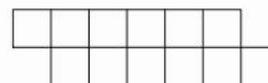
Two different views are shown of a pair of identical dice, each numbered 1 to 6. Which number is opposite the number 5? [Note: Though identical, the dice are not regular in that opposite sides do not always add to 7.]



4

32. [Problem Solving 2]

How many squares are there in the diagram? [Hint: There are more than 12!]



16

33. [Problem Solving 3]

All pens are the same price. Which deal is cheaper per pen?

- A) Buy 8 pens and get 25% off
- B) Buy 5 pens and save 20%

A



Test 8

Covering worksheets

4.5 - 4.8

Name:

1. [+ Whole Numbers to 10]

	14	20	57	3	16	11	8	39	65	22
+ 6	20	26	63	9	22	17	14	45	71	28

2. [- Whole Numbers to 10]

	9	14	62	35	17	20	46	13	91	18
- 7	2	7	55	28	10	13	39	6	84	11

3. [× Whole Numbers to 12]

	4	9	12	5	8	3	11	6	7	10
× 9	36	81	108	45	72	27	99	54	63	90

4. [+ Whole Numbers to 12]

	22	110	121	55	88	66	33	99	44	77
÷ 11	2	10	11	5	8	6	3	9	4	7

5. [Large Number +, -]

$$\begin{array}{r} 1\ 6\ 8\ 3\ 4 \\ +\ 6\ 0\ 9\ 7 \\ \hline \end{array}$$

22931

10. [Fraction ×, ÷]

$$\frac{2}{3} \div \frac{3}{4} =$$

$\frac{8}{9}$

17. [Exploring Numbers]

Choose the whole numbers from this list:

2010, $\frac{1}{9}$, -17, 0, -6.35

2010, 0

6. [Large Number ×, ÷]

$$\begin{array}{r} 1\ 1\ 2\ 6 \\ \times\ 1\ 5 \\ \hline \end{array}$$

5630

11260

16890

11. [Percentages]

If a \$300 food processor is reduced by 20%, what is the sale price?

\$240

18. [Multiples / Factors / Primes]

List the prime factors of 33.

3, 11

7. [Decimal +, -]

$$\begin{array}{r} 9\ 7 \\ -\ 0.0\ 3 \\ \hline \end{array}$$

96.97

13. [Integers]

$$-2 + 3 =$$

1

20. [Expressions]

Di has x 20-cent pieces and y 50-cent pieces in her pocket. Which expression shows the total amount in cents she has in her pocket?

A) $20 \times y + 20 \times x$

B) $20 \times y + 50 \times x$

C) $20 \times x + 50 \times y$

C

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.7 \\ \times\ 0.5 \\ \hline \end{array}$$

0.35

14. [Rates / Ratios]

The standard dimensions for small posters are 32 cm wide and 40 cm high. Find the ratio of width to height.

4:5

21. [Substitution]

If $u = 4$, find the value of $7 + u^2$

23

9. [Fraction +, -]

$$\frac{2}{3} + \frac{1}{6} =$$

$\frac{5}{6}$

16. [Order of Operations]

$$4 + 3^2 \times 2 =$$

22

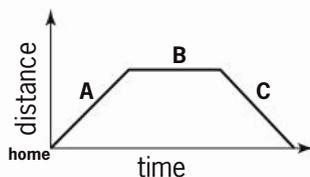
22. [Equations]

Solve for x :
 $x + 3 = 8$

$x = 5$

23. [Coordinates]

This graph shows Nicky's distance from home while she is out walking. In which section of the graph is Nicky walking towards home?



C

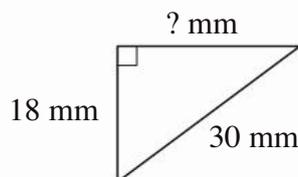
24. [Units of Measurement / Time]

Find the time in hours and minutes between 11:00 am and 9:50 pm on the same day.

10h 50 min

25. [Perimeter]

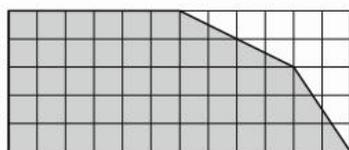
The perimeter of the right-angled triangle is 72 mm. Find the missing side length.



24 mm

26. [Area / Volume]

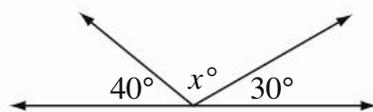
Find the area of the shaded polygon.



49 sq. units

27. [Shapes]

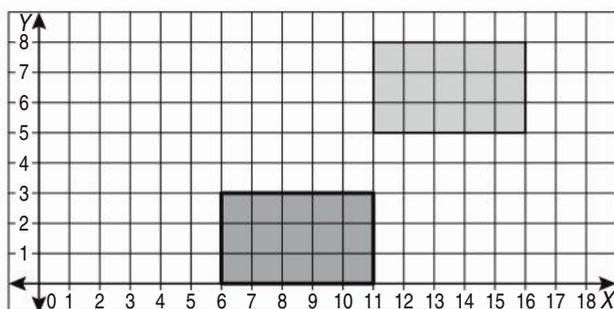
Find the value of x° .



110°

28. [Location / Transformation]

Redraw this rectangle after subtracting 5 units from the coordinates of its vertices.



29. [Statistics]

Complete the stem-and-leaf plot showing the lowest winning scores for each round of the 2018 AFL season:

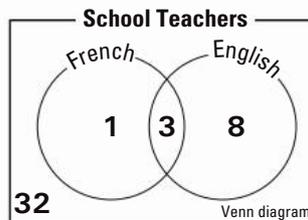
55, 94, 95, 82, 76, 77, 68, 66, 63, 67, 64, 71, 72, 75, 88, 71, 59, 80, 78, 73, 62, 66, 76

Stem	Leaf
5	5 9
6	2 3 4 6 6 7 8
7	1 1 2 3 5 6 6 7 8
8	0 2 8
9	4 5

Key
7|0 = 70

30. [Probability]

What is the probability that a teacher selected at random from the staff teaches French? [Give your answer as a fraction in simplest form.]



1/11

31. [Problem Solving 1]

A number of students are standing in a circle. They are evenly spaced and the second student is directly opposite the ninth student. How many students are there altogether?

14

32. [Problem Solving 2]

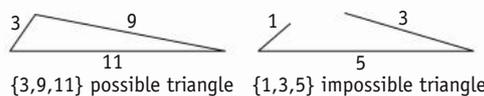
Marek forgot the last two digits of his four-digit locker code: 59??

If the number is divisible by 3, by 4 and by 5, what is Marek's locker code?

5940

33. [Problem Solving 3]

Liam has six sticks of the following lengths: 1 cm, 3 cm, 5 cm, 7 cm, 11 cm and 13 cm. How many different triangles can he make using three of these sticks?



5



Test 8

Covering worksheets

4.5 - 4.8

Name:

1. [+ Whole Numbers to 10]

	9	45	12	76	13	90	31	18	7	14
+ 9	18	54	21	85	22	99	40	27	16	23

2. [- Whole Numbers to 10]

	18	22	16	41	30	9	13	7	65	44
- 3	15	19	13	38	27	6	10	4	62	41

3. [× Whole Numbers to 12]

	3	11	10	7	5	9	2	4	6	8
× 12	36	132	120	84	60	108	24	48	72	96

4. [+ Whole Numbers to 12]

	84	49	70	77	42	63	28	56	21	35
÷ 7	12	7	10	11	6	9	4	8	3	5

5. [Large Number +, -]

$$\begin{array}{r} 32608 \\ + 7492 \\ \hline \end{array}$$

40100

10. [Fraction ×, ÷]

$$\frac{3}{5} \div \frac{2}{3} =$$

$\frac{9}{10}$

17. [Exploring Numbers]

Choose the whole numbers from this list:

500, -30, $\frac{1}{4}$, 11, -0.8

500, 11

6. [Large Number ×, ÷]

$$\begin{array}{r} 1035 \\ \times 24 \\ \hline \end{array}$$

4140

20700

24840

11. [Percentages]

If a \$400 camera is reduced by 30%, what is the sale price?

\$280

18. [Multiples / Factors / Primes]

List the prime factors of 39.

3, 13

12. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.7	$\frac{7}{10}$	70%

19. [Number Patterns]

Complete the pattern:

-10, -6, -2, 2, **6, 10**

7. [Decimal +, -]

$$\begin{array}{r} 66 \\ - 0.08 \\ \hline \end{array}$$

65.92

13. [Integers]

$$-4 + 8 =$$

4

20. [Expressions]

A movie ticket for an adult is \$22, and a child's ticket is \$15. Which expression shows the total cost for x adults and y children?

A) $22 \times y + 15 \times y$

B) $22 \times x + 15 \times y$

C) $22 \times y + 15 \times x$

B

8. [Decimal ×, ÷]

$$\begin{array}{r} 0.8 \\ \times 0.6 \\ \hline \end{array}$$

0.48

14. [Rates / Ratios]

The standard dimensions for photos are 10 cm wide and 15 cm high. Find the ratio of width to height.

2:3

15. [Indices / Square Roots]

$$2^4 =$$

16

21. [Substitution]

If $k = 6$, find the value of $3 + k^2$

39

9. [Fraction +, -]

$$\frac{1}{4} + \frac{5}{16} =$$

$\frac{9}{16}$

16. [Order of Operations]

$$6 + 2^2 \times 5 =$$

26

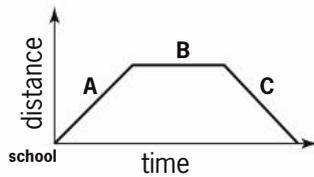
22. [Equations]

Solve for x :
 $x + 5 = 9$

$x = 4$

23. [Coordinates]

This graph shows Sammy's distance from school while she is out walking. In which section of the graph is Sammy walking away from school?



A

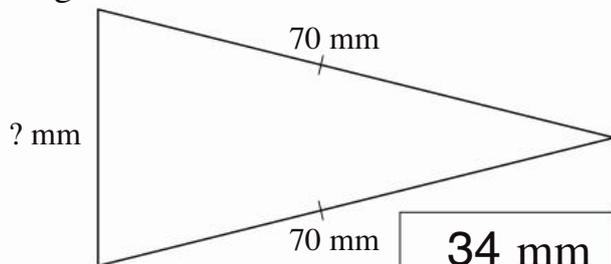
24. [Units of Measurement / Time]

Find the time in hours and minutes between 7:00 am and 8:45 pm on the same day.

13h 45 min

25. [Perimeter]

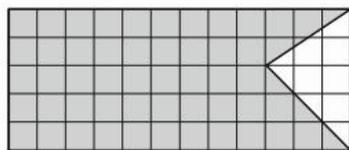
The perimeter of the isosceles triangle is 174 mm. Find the missing side length.



34 mm

26. [Area / Volume]

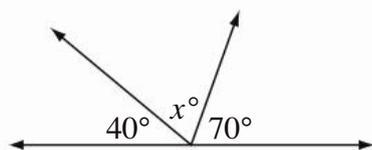
Find the area of the shaded polygon.



52.5 sq. units

27. [Shapes]

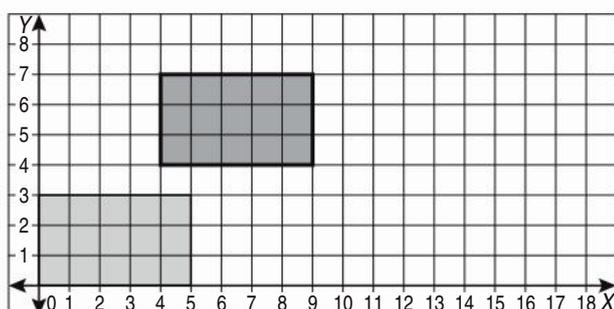
Find the value of x° .



70°

28. [Location / Transformation]

Redraw this rectangle after adding 4 units to the coordinates of its vertices.



29. [Statistics]

Complete the stem-and-leaf plot showing the highest winning scores for each round of the 2018 AFL season:

133, 121, 123, 139, 108, 113, 125, 146, 159, 146, 141, 134, 132, 109, 125, 122, 119, 130, 120, 151, 125, 158, 165

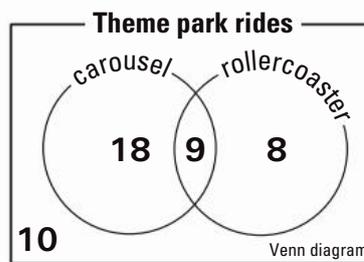
Stem	Leaf
10	8 9
11	3 9
12	0 1 2 3 5 5 5
13	0 2 3 4 9
14	1 6 6
15	1 8 9
16	5

Key
12|0 = 120

30. [Probability]

What is the probability that a child chosen at random went on a carousel?

[Give your answer as a fraction in simplest form.]



$\frac{3}{5}$

31. [Problem Solving 1]

A number of students are evenly spaced around a circle. If the third student is directly opposite the eleventh student, how many students are standing in the circle?

16

32. [Problem Solving 2]

Roger forgot the last two digits of his four-digit locker code: 14??

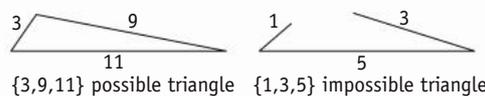
14??

If the number is divisible by 3, by 4 and by 5, what is Roger's locker code?

1440

33. [Problem Solving 3]

Gian has six sticks of the following lengths: 1 cm, 3 cm, 5 cm, 7 cm, 9 cm and 11 cm. How many different triangles can she make using three of these sticks?



7

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

pages 3 - 72



Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 16



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10

MATHS MATE



Name:

Class:

Teacher:

Worksheet Results

Term 1

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [+ Whole Numbers to 10]	1	1	1	1	1.1	1	1	1	1	1.1
	2. [- Whole Numbers to 10]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
	5. [Large Number +,-]	5	5	5	5	5.2	5	5	5	5	5.1
	6. [Large Number ×,÷]	6	6	6	6	6.2	6	6	6	6	6.1
	7. [Decimal +,-]	7	7	7	7	7.1	7	7	7	7	7.2
	8. [Decimal ×,÷]	8	8	8	8	8.1	8	8	8	8	8.3
	9. [Fraction +,-]	9	9	9	9	9.1,2	9	9	9	9	9.1,2
	10. [Fraction ×,÷]	10	10	10	10	10.1	10	10	10	10	10.1
	11. [Percentages]	11	11	11	11	11.1	11	11	11	11	11.2
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.1	12	12	12	12	12.2
	13. [Integers]	13	13	13	13	13.1	13	13	13	13	13.1
	14. [Rates / Ratios]	14	14	14	14	14.1	14	14	14	14	14.2
	15. [Indices / Square Roots]	15	15	15	15	15.1	15	15	15	15	15.2
	16. [Order of Operations]	16	16	16	16	16.1	16	16	16	16	16.2
	17. [Exploring Numbers]	17	17	17	17	17.1	17	17	17	17	17.2
	18. [Multiples / Factors / Primes]	18	18	18	18	18.1,2	18	18	18	18	18.3
	19. [Number Patterns]	19	19	19	19	19.1,3,4	19	19	19	19	19.2,3,4
ALGEBRA	20. [Expressions]	20	20	20	20	20.1	20	20	20	20	20.1
	21. [Substitution]	21	21	21	21	21.1	21	21	21	21	21.2
	22. [Equations]	22	22	22	22	22.1	22	22	22	22	22.1
	23. [Coordinates]	23	23	23	23	23.1	23	23	23	23	23.2,3
MEASUREMENT	24. [Units of Measurement / Time]	24	24	24	24	24.1	24	24	24	24	24.2
	25. [Perimeter]	25	25	25	25	25.1	25	25	25	25	25.1,2
	26. [Area / Volume]	26	26	26	26	26.1	26	26	26	26	26.2
SPACE	27. [Shapes]	27	27	27	27	27.1	27	27	27	27	27.2
	28. [Location / Transformation]	28	28	28	28	28.1	28	28	28	28	28.2
STAT.	29. [Statistics]	29	29	29	29	29.1	29	29	29	29	29.2
PROB.	30. [Probability]	30	30	30	30	30.1	30	30	30	30	30.2
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

MATHS MATE



Name:

Class:

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Worksheet Results

Term 2

	Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1	1	1	1	1.1	1	1	1	1	1.1
	2	2	2	2	2.1	2	2	2	2	2.1
	3	3	3	3	3.1	3	3	3	3	3.1
	4	4	4	4	4.1	4	4	4	4	4.1
	5	5	5	5	5.4	5	5	5	5	5.3
	6	6	6	6	6.4	6	6	6	6	6.3
	7	7	7	7	7.1	7	7	7	7	7.2
	8	8	8	8	8.1	8	8	8	8	8.2
	9	9	9	9	9.3,4	9	9	9	9	9.5
	10	10	10	10	10.2	10	10	10	10	10.3
	11	11	11	11	11.3	11	11	11	11	11.3
	12	12	12	12	12.3	12	12	12	12	12.5
	13	13	13	13	13.2	13	13	13	13	13.3
	14	14	14	14	14.3	14	14	14	14	14.3
	15	15	15	15	15.3	15	15	15	15	15.4
	16	16	16	16	16.3	16	16	16	16	16.4
	17	17	17	17	17.2	17	17	17	17	17.3,4
	18	18	18	18	18.4	18	18	18	18	18.4
	19	19	19	19	19.5	19	19	19	19	19.6
ALGEBRA	20	20	20	20	20.2	20	20	20	20	20.2
	21	21	21	21	21.3	21	21	21	21	21.4
	22	22	22	22	22.2	22	22	22	22	22.1,2
	23	23	23	23	23.4	23	23	23	23	23.5
MEASUREMENT	24	24	24	24	24.3	24	24	24	24	24.2
	25	25	25	25	25.2	25	25	25	25	25.3
	26	26	26	26	26.3	26	26	26	26	26.4
SPACE	27	27	27	27	27.3	27	27	27	27	27.4,5
	28	28	28	28	28.3	28	28	28	28	28.4
STAT.	29	29	29	29	29.3	29	29	29	29	29.4,5
PROB.	30	30	30	30	30.3	30	30	30	30	30.4
PROBLEM SOLVING	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

MATHS MATE



Name:

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Worksheet Results

Term 3

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [+ Whole Numbers to 10]	1	1	1	1	1.1	1	1	1	1	1.1
	2. [- Whole Numbers to 10]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
	5. [Large Number +,-]	5	5	5	5	5.4	5	5	5	5	5.3
	6. [Large Number ×,÷]	6	6	6	6	6.5	6	6	6	6	6.7
	7. [Decimal +,-]	7	7	7	7	7.1	7	7	7	7	7.2
	8. [Decimal ×,÷]	8	8	8	8	8.1	8	8	8	8	8.2
	9. [Fraction +,-]	9	9	9	9	9.1,2	9	9	9	9	9.3
	10. [Fraction ×,÷]	10	10	10	10	10.4	10	10	10	10	10.5
	11. [Percentages]	11	11	11	11	11.4	11	11	11	11	11.5
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.6,7	12	12	12	12	12.8,9
	13. [Integers]	13	13	13	13	13.4	13	13	13	13	13.5
	14. [Rates / Ratios]	14	14	14	14	14.4	14	14	14	14	14.5,6
	15. [Indices / Square Roots]	15	15	15	15	15.4	15	15	15	15	15.2
	16. [Order of Operations]	16	16	16	16	16.2,4	16	16	16	16	16.4
	17. [Exploring Numbers]	17	17	17	17	17.5	17	17	17	17	17.6,7
	18. [Multiples / Factors / Primes]	18	18	18	18	18.5,6	18	18	18	18	18.7
	19. [Number Patterns]	19	19	19	19	19.7	19	19	19	19	19.8
ALGEBRA	20. [Expressions]	20	20	20	20	20.3	20	20	20	20	20.4
	21. [Substitution]	21	21	21	21	21.5,6	21	21	21	21	21.7
	22. [Equations]	22	22	22	22	22.3	22	22	22	22	22.3
	23. [Coordinates]	23	23	23	23	23.6	23	23	23	23	23.7
MEASUREMENT	24. [Units of Measurement / Time]	24	24	24	24	24.4	24	24	24	24	24.1
	25. [Perimeter]	25	25	25	25	25.4	25	25	25	25	25.2
	26. [Area / Volume]	26	26	26	26	26.5	26	26	26	26	26.6
SPACE	27. [Shapes]	27	27	27	27	27.5,6	27	27	27	27	27.7,8
	28. [Location / Transformation]	28	28	28	28	28.5	28	28	28	28	28.5
STAT.	29. [Statistics]	29	29	29	29	29.6,7	29	29	29	29	29.8
PROB.	30. [Probability]	30	30	30	30	30.5	30	30	30	30	30.5
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

MATHS MATE



Name:

Class:

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Worksheet Results

Term 4

	Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1	1	1	1	1.1	1	1	1	1	1.1
	2	2	2	2	2.1	2	2	2	2	2.1
	3	3	3	3	3.1	3	3	3	3	3.1
	4	4	4	4	4.1	4	4	4	4	4.1
	5	5	5	5	5.4	5	5	5	5	5.3
	6	6	6	6	6.6,8	6	6	6	6	6.7
	7	7	7	7	7.1	7	7	7	7	7.2
	8	8	8	8	8.4	8	8	8	8	8.5
	9	9	9	9	9.6,8	9	9	9	9	9.6,8
	10	10	10	10	10.4	10	10	10	10	10.6
	11	11	11	11	11.4	11	11	11	11	11.5
	12	12	12	12	12.10,11	12	12	12	12	12.12
	13	13	13	13	13.6	13	13	13	13	13.7,8
	14	14	14	14	14.7	14	14	14	14	14.8
	15	15	15	15	15.4	15	15	15	15	15.5
	16	16	16	16	16.4	16	16	16	16	16.5
	17	17	17	17	17.8	17	17	17	17	17.9
	18	18	18	18	18.8	18	18	18	18	18.9
	19	19	19	19	19.8	19	19	19	19	19.9
ALGEBRA	20	20	20	20	20.5	20	20	20	20	20.3
	21	21	21	21	21.8	21	21	21	21	21.9
	22	22	22	22	22.4	22	22	22	22	22.6
	23	23	23	23	23.8	23	23	23	23	23.8
MEASUREMENT	24	24	24	24	24.5	24	24	24	24	24.6
	25	25	25	25	25.5	25	25	25	25	25.6
	26	26	26	26	26.7	26	26	26	26	26.8
SPACE	27	27	27	27	27.9	27	27	27	27	27.10,11
	28	28	28	28	28.6	28	28	28	28	28.7
STAT.	29	29	29	29	29.9	29	29	29	29	29.10
PROB.	30	30	30	30	30.5,6	30	30	30	30	30.7
PROBLEM SOLVING	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	

MATHS MATE



Name:

Class:

Teacher:

Worksheet Results

Term 1

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [+ Whole Numbers to 10]	1	1	1	1	1.1	1	1	1	1	1.1
	2. [- Whole Numbers to 10]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
	5. [Large Number +,-]	5	5	5	5	5.2	5	5	5	5	5.1
	6. [Large Number ×,÷]	6	6	6	6	6.2	6	6	6	6	6.1
	7. [Decimal +,-]	7	7	7	7	7.1	7	7	7	7	7.2
	8. [Decimal ×,÷]	8	8	8	8	8.1	8	8	8	8	8.3
	9. [Fraction +,-]	9	9	9	9	9.1,2	9	9	9	9	9.1,2
	10. [Fraction ×,÷]	10	10	10	10	10.1	10	10	10	10	10.1
	11. [Percentages]	11	11	11	11	11.1	11	11	11	11	11.2
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.1	12	12	12	12	12.2
	13. [Integers]	13	13	13	13	13.1	13	13	13	13	13.1
	14. [Rates / Ratios]	14	14	14	14	14.1	14	14	14	14	14.2
	15. [Indices / Square Roots]	15	15	15	15	15.1	15	15	15	15	15.2
	16. [Order of Operations]	16	16	16	16	16.1	16	16	16	16	16.2
	17. [Exploring Numbers]	17	17	17	17	17.1	17	17	17	17	17.2
	18. [Multiples / Factors / Primes]	18	18	18	18	18.1,2	18	18	18	18	18.3
	19. [Number Patterns]	19	19	19	19	19.1,3,4	19	19	19	19	19.2,3,4
ALGEBRA	20. [Expressions]	20	20	20	20	20.1	20	20	20	20	20.1
	21. [Substitution]	21	21	21	21	21.1	21	21	21	21	21.2
	22. [Equations]	22	22	22	22	22.1	22	22	22	22	22.1
	23. [Coordinates]	23	23	23	23	23.1	23	23	23	23	23.2,3
MEASUREMENT	24. [Units of Measurement / Time]	24	24	24	24	24.1	24	24	24	24	24.2
	25. [Perimeter]	25	25	25	25	25.1	25	25	25	25	25.1,2
	26. [Area / Volume]	26	26	26	26	26.1	26	26	26	26	26.2
SPACE	27. [Shapes]	27	27	27	27	27.1	27	27	27	27	27.2
	28. [Location / Transformation]	28	28	28	28	28.1	28	28	28	28	28.2
STAT.	29. [Statistics]	29	29	29	29	29.1	29	29	29	29	29.2
PROB.	30. [Probability]	30	30	30	30	30.1	30	30	30	30	30.2
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	



Class:

Teacher:

Worksheet Number	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
1								
2								
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31								
32								
33								
34								

✓ - Signed by parent L - Work handed in late x - Not signed by parent



Class:

Teacher:

	Worksheet Number	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8
1									
2									
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6									
7									
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18									
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✓ - Signed by parent
 L - Work handed in late
 ✗ - Not signed by parent



Class:

Teacher:

Worksheet Number	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
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✓ - Signed by parent L - Work handed in late x - Not signed by parent



Class:

Teacher:

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