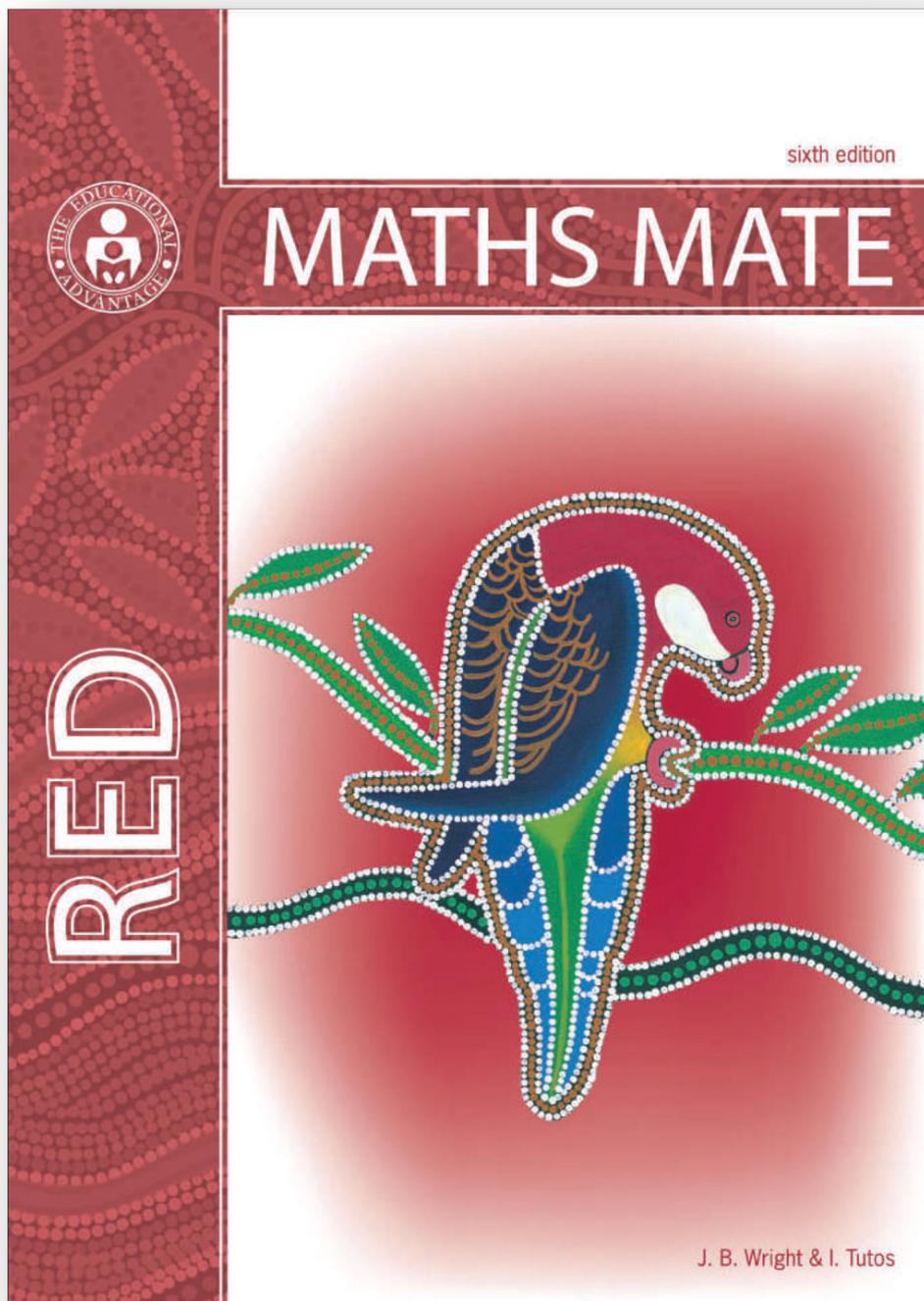


MATHS MATE

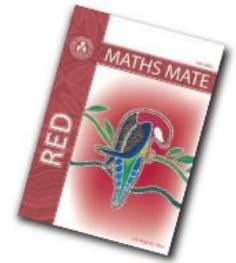


sixth edition



MATHS MATE

Teacher Resource Red (Maths Mate year 6)



- ▶ 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 Yellow/Red contact us:

- ▶ **info@mathsmate.net**

J. B. Wright & I. Tutos

MATHS MATE



Teacher Resource



Teacher's Guide to the Use of Maths Mate

pages i - viii



Student Workbook Answers

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Student Workbook Short Answers

pages 1 - 8



Problem Solving Hints & Solutions

pages 1 - 18



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
		NZ Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13
Orange	Student Workbook - 2nd Ed.												
Rose	Student Workbook - 2nd Ed.												
Yellow	Student Workbook - 6th Ed.												
Red	Student Workbook - 6th 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.												

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Maths Mate Red cover painting

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



'Rosella' 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 Years 4 to 11 (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.

Tell the students that there is a 'Mate' 😊 hiding on every Maths Mate worksheet. The trick is to find it!

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 circles 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 circles 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.

MATHS MATE
Name: Anthony Wright
Class: 6/78
Teacher: Miss Bourke

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
1. [+ Whole Numbers to 10]	1	1	1	1	1.1,2,3,4	1	1	1	1	1.1,2,3,4
2. [- Whole Numbers to 10]	2	2	2	2	2.1,2,3,4,5	2	2	2	2	2.1,2,3,4,5
3. [× Whole Numbers to 10]	3	3	3	3	3.3,4,5	3	3	3	3	3.1,2,3,4
4. [+ Whole Numbers to 10]	4	4	4	4	4.1,2	4	4	4	4	4.1,2
5. [Large Number +]	5	5	5	5	5.1	5	5	5	5	5.1
6. [Large Number -]	6	6	6	6	6.1	6	6	6	6	6.1
7. [Powers of 10 ×,÷]	7	7	7	7	7.1,2	7	7	7	7	7.3,4
8. [Large Number ×,÷]	8	8	8	8	8.1,2	8	8	8	8	8.4
9. [Decimals]	9	9	9	9	9.2	9	9	9	9	9.4,8
10. [Fractions]	10	10	10	10	10.1	10	10	10	10	10.6
11. [Decimals / Fractions]	11	11	11	11	11.3	11	11	11	11	11.4
12. [Place Value]	12	12	12	12	12.1	12	12	12	12	12.2
13. [Operations]	13	13	13	13	13.1,2	13	13	13	13	13.3,4
14. [Exploring Numbers]	14	14	14	14	14.1	14	14	14	14	14.3,4,9
15. [Number Patterns / Equations]	15	15	15	15	15.1,3	15	15	15	15	15.2,4
16. [Units of Measurement]	16	16	16	16	16.1	16	16	16	16	16.2
17. [Time]	17	17	17	17	17.1,2	17	17	17	17	17.3
18. [Measuring]	18	18	18	18	18.1	18	18	18	18	18.2
19. [Shapes]	19	19	19	19	19.2	19	19	19	19	19.3,4
20. [Location / Transformation]	20	20	20	20	20.11	20	20	20	20	20.9
21. [Statistics / Probability]	21	21	21	21	21.2	21	21	21	21	21.3,4
22. [Problem Solving 1]	22	22	22	22	Hints & Solutions	22	22	22	22	Hints & Solutions
23. [Problem Solving 2]	23	23	23	23	Hints & Solutions	23	23	23	23	Hints & Solutions
24. [Problem Solving 3]	24	24	24	24	Hints & Solutions	24	24	24	24	Hints & Solutions
Total Correct	22	21	20	22		○	○	○	○	

page 1 © Maths Mate Red - Record Keeping Sheets

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 19). 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.

Fig. 1 - Sample *Worksheet Results* sheet

15. [Number Patterns / Equations]

Skill Builder Generate a set of four similar questions for each Skill Builder. Use the same question style.

Yellow 1 1 22 33 44
Red 1 1 22 33 44

- Find the number used to get from term to term.
- Find the operation used to get from term to term.

Hint: Every number pattern is created by a rule involving numbers and operations.

Q. 1, 7, 13, 19, 25, **A.** 1, 7, 13, 19, 25, **31, 37**

+6 +6 +6 +6 +6 +6

Ask: "Are the numbers increasing or decreasing?"
"How can you get from 1 to 7?"

Answer: To get from 1 to 7, add 6.
To get from 7 to 13, add 6.
To get from 13 to 19, add 6 and so on.
So the rule of the pattern is:
"Add 6 to the previous number."
Apply this rule to the last given number.
25 + 6 = 31
31 + 6 = 37

a) 5, 9, 13, 17, 21, **b)** 9, 14, 19, 24, 29,

+4 +4 +4 +4 +4 +4

c) 8, 11, 14, 17, 20, **d)** 6, 16, 26, 36, 46,

e) 3, 10, 17, 24, 31, **f)** 5, 14, 23, 32, 41,

g) 5, 11, 17, 23, 29, **h)** 10, 17, 24, 31, 38,

i) 44, 46, 48, 50, 52, **j)** 7, 15, 23, 31, 39,

page 121 www.mathsmate.net © Maths Mate 5/6 Skill Builder 15

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 Red (year 6) 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: 6/7B		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	18 × L 1							
3	BOURKE Louise	16 ✓ 6							
4	CROSS Chris	14 ✓ 4							
5	DWYER Jim	21 × 15							
6	FIORE Ella	18 ✓							
7	FREEMAN Warren	17 ✓ 19							
8	HAHN Kim	21 ✓							
9	HU Joanna	20 ✓							
10	JILBERT Luke	19 × L 12							
11	KEUNEMAN John	15 ✓							
12	McKENNA Joseph	18 ✓ 13							
13	MOYLE Brendan	14 ✓ 13							
14	MOYLE Emily	17 ✓ 16							
15	NESBIT Peter	22 ✓ 17							
16	RYAN Jacinta	21 × L 4							
17	RYAN Madeline	15 ✓ 14							
18	SETON Elizabeth	24 ×							
19	TUTOS Alexander	20 ✓ 15							
20	WINKELS Tim	19 × 5							
21	WRIGHT Anthony	22 ✓ 15							
22	WRIGHT Paul	20 ✓							
23	YEO Tania	20 ✓							
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 Red - 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. Red~Test 3A and Red~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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Email: info@mathsmate.co.nz
Website: www.mathsmate.co.nz

Dear Parents,

This year, as part of their Mathematics program, all Year 6/7 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

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Test Answers

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Record Keeping Sheets

pages 1 - 10



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

DIVIDING BY 5

Here is an easy way to divide by 5:

Double the number and then divide by 10.

e.g. 1) $1230 \div 5 = 246$

$$1230 \times 2 = 2460$$

$$2460 \div 10 = 246$$

e.g. 2) $288 \div 5 = 57.6$

$$288 \times 2 = 576$$

$$576 \div 10 = 57.6$$

CHALLENGE:

You'll find this little Mate © on every sheet but one! The question is which one?

Answer: Sheet 3.6

5. [Large Number +]

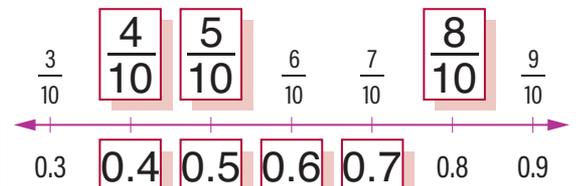
$$\begin{array}{r} 56 \\ + 23 \\ \hline 79 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 243 \\ \times 2 \\ \hline 486 \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 56 \\ - 23 \\ \hline 33 \end{array}$$

9. [Decimals]

Write as a decimal:
nine tenths.

0.9

12. [Place Value]

Which digit in 8526 is in the same place as the 3 in 934?

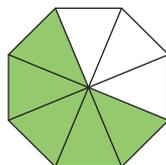
2

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 26 \\ \times 10 \\ \hline 260 \end{array}$$

10. [Fractions]

What fraction of this octagon is shaded?



$\frac{5}{8}$

13. [Operations]

$$8 + 11 = 11 + 8$$

14. [Exploring Numbers]

Write in numerals:
one thousand, two hundred and seven

1207

15. [Number Patterns / Equations]

16, 13, 10, 7, 4, 1

16. [Units of Measurement]

Choose the appropriate unit:
grams, kilograms or tonnes.
"Ten oranges would weigh about 2..."

kilograms

17. [Measuring]

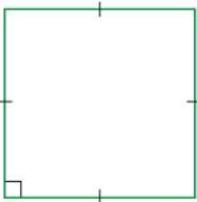
Estimate the length of the pencil.



Accept 75 to 85 → 80 mm

18. [Perimeter / Area] *

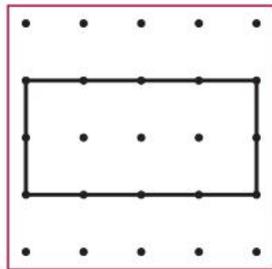
Using a ruler, measure the side length of the square in millimetres. What is the perimeter of the square?



100 mm

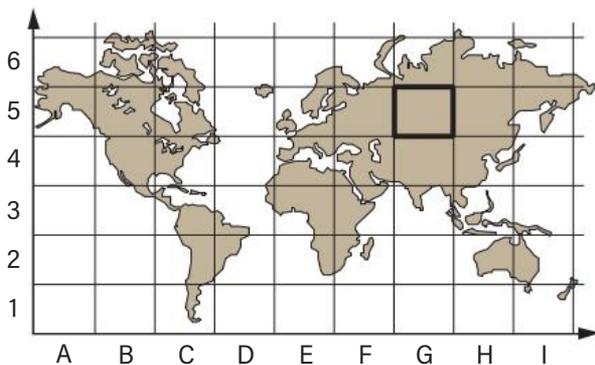
19. [Shapes]

Draw a rectangle on the dotted grid. Make sure that all the vertices are on a dot.



20. [Location / Transformation]

Which continent would you be in, if you were at G5 on this map?

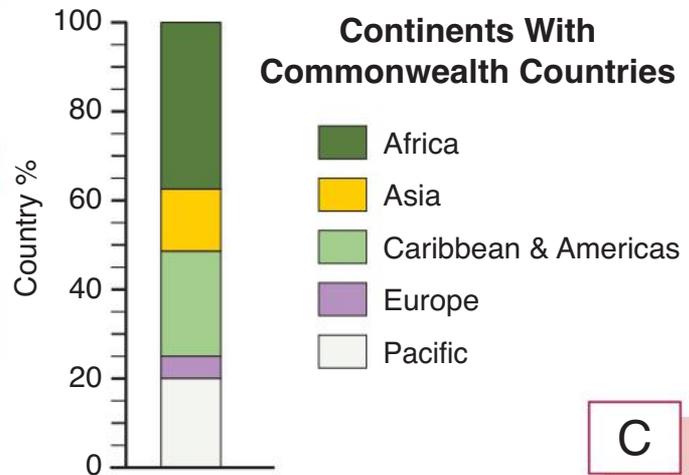


Asia

21. [Statistics / Probability]

There are 56 independent countries in the Commonwealth. The percentage of these countries located in Africa is closest to:

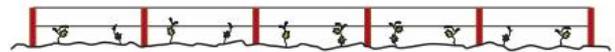
A 60% B 50% C 40% D 30%



C

22. [Problem Solving 1] *

Ragan takes an hour to plant 2 vines between each of the 6 posts in the first row of his vineyard. How long will it take to plant 2 vines between each of the 9 posts in the longer second row?

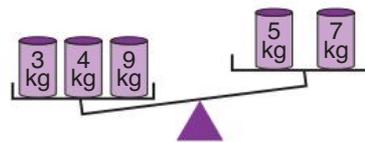


[Hint: 10 vines take one hour.]

96 min

23. [Problem Solving 2] *

Which two weights need to be swapped to balance the scales?



9 kg and 7 kg

24. [Problem Solving 3]

Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r} 2 \quad \boxed{3} \quad 4 \\ + \quad \boxed{7} \quad 1 \quad \boxed{6} \\ \hline 9 \quad \boxed{5} \quad 0 \end{array}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MULTIPLYING BY 25

To multiply by 25 you can multiply by 100 and then divide by 4.

e.g. $32 \times 25 = 800$

$$\begin{aligned} 32 \times 100 &= 3200 \\ 3200 \div 4 &= 800 \end{aligned}$$

Try your skill:

$$\begin{aligned} 24 \times 25 \\ 444 \times 25 \\ 18 \times 25 \end{aligned}$$



Answers: 600, 11100, 450

5. [Large Number +]

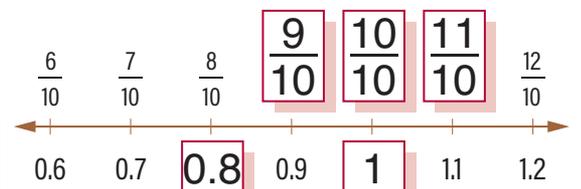
$$\begin{array}{r} 257 \\ + 232 \\ \hline 489 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 210 \\ \times 4 \\ \hline 840 \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 849 \\ - 333 \\ \hline 516 \end{array}$$

9. [Decimals]

Write as a decimal:
two and eleven hundredths.

2.11

12. [Place Value]

Which digit in 4257 is in the tens place?

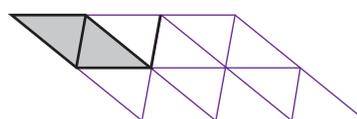
5

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 183 \\ \times 10 \\ \hline 1830 \end{array}$$

10. [Fractions]

Shade in $\frac{1}{6}$ of this parallelogram.



[any 2 small triangles]

13. [Operations]

21 + 13 = 13 + 21

14. [Exploring Numbers]

Write in numerals:
three thousand, five hundred and forty

3540

15. [Number Patterns / Equations]

2, 9, 16, 23, 30, 37, 44

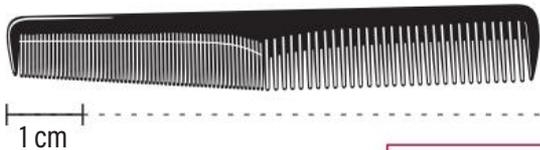
16. [Units of Measurement]

Choose the appropriate unit: millimetres, centimetres or metres.
"The height of Keops Pyramid in Egypt is 137..."

metres

17. [Measuring]

Estimate the length of the comb.



Accept 6 to 8 → 7 cm

18. [Perimeter / Area] *

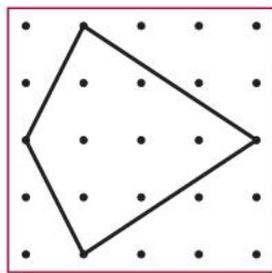
Using a ruler, measure the side lengths of the rectangle in centimetres. What is the perimeter of the rectangle?



14 cm

19. [Shapes]

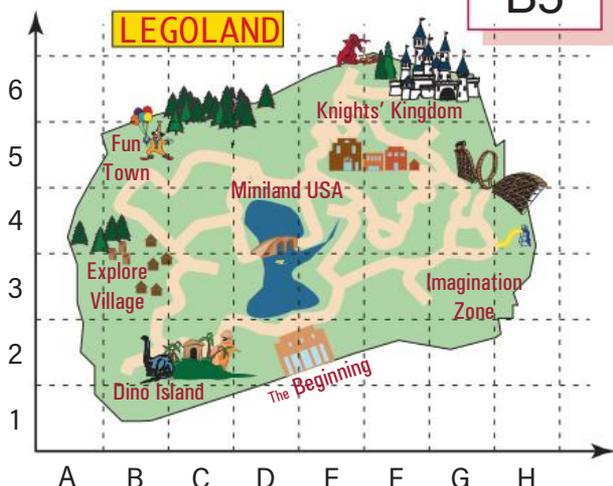
Draw a kite on the dotted grid. Make sure that all the vertices are on a dot.



20. [Location / Transformation]

Which grid reference describes the location of Fun Town?

B5



21. [Statistics / Probability]

What percentage of the composition of the 787 Dreamliner is steel?

Composition of the Boeing 787 Dreamliner



20%

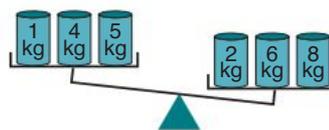
22. [Problem Solving 1] *

For hurdles races, the hurdles are placed 10 m apart. For example, a 60 m race has 5 hurdles. How many hurdles are required for a 100 m race?

9

23. [Problem Solving 2] *

Which two weights need to be swapped to balance the scales?



5 kg and 8 kg

24. [Problem Solving 3]

Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r} 1 \quad \boxed{5} \quad 7 \\ + 4 \quad 8 \quad \boxed{2} \\ \hline \boxed{6} \quad \boxed{3} \quad 9 \end{array}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MULTIPLYING BY 9

Here is an easy way to multiply a number by 9:
Multiply by 10 instead, and then just subtract the original number.

e.g. $45 \times 9 = 405$

$45 \times 10 = 450$

$450 - 45 = 405$

Try your skill:

23×9

34×9

28×9



Answers: 207, 306, 252

5. [Large Number +]

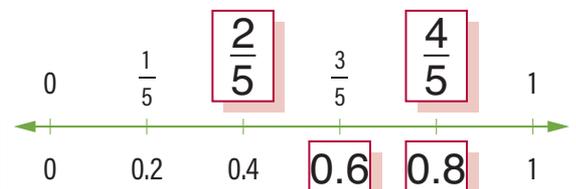
$$\begin{array}{r} 7623 \\ + 1074 \\ \hline 8697 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 36 \\ \times 6 \\ \hline 216 \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 976 \\ - 733 \\ \hline 243 \end{array}$$

9. [Decimals]

Write as a decimal:
five and two tenths.

5.2

12. [Place Value]

Which digit in 24.38 is in the hundredths place?

8

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 57 \\ \times 100 \\ \hline 5700 \end{array}$$

10. [Fractions]

Mark $\frac{3}{4}$ with an arrow and $\frac{1}{2}$ with a star on the number line.



13. [Operations]

$15 \times 4 = 4 \times 15$

14. [Exploring Numbers]

Write in numerals:
nine thousand and ninety-nine

9099

15. [Number Patterns / Equations]

9, 18, 27, 36, 45, 54, 63

16. [Units of Measurement]

How many of these objects are likely to have a capacity greater than 1 litre?

A teacup

A bucket

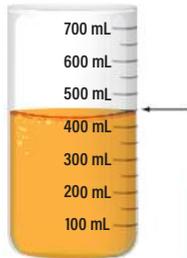
A medicine bottle

A large jug

2

17. [Measuring]

How much solution is in the measuring cylinder?



450 mL

18. [Perimeter / Area] *

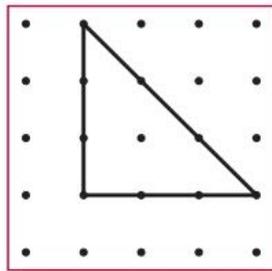
Using a ruler, measure the side lengths of the rectangle in centimetres. What is the perimeter of the rectangle?



12 cm

19. [Shapes]

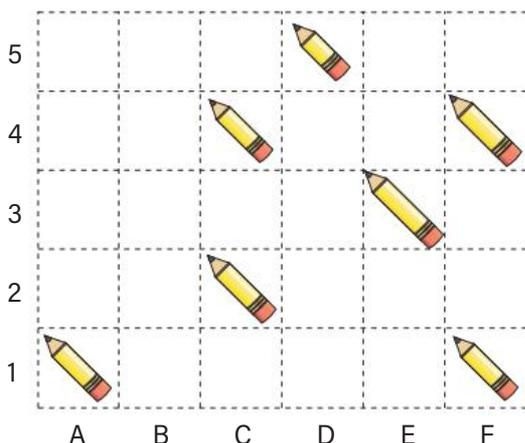
Draw a right-angled triangle with two equal sides on the dotted grid. Make sure that all the vertices are on a dot.



20. [Location / Transformation]

The shortest pencil is at D5. Find the grid reference of the longest pencil.

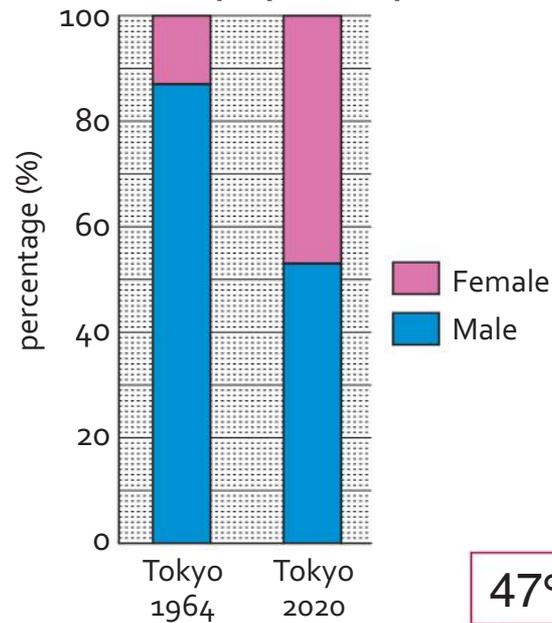
E3



21. [Statistics / Probability]

What percentage of competitors at the 2020 Tokyo Olympics were female?

Gender of Olympic Competitors



47%

22. [Problem Solving 1] *

If it takes Sarah twelve minutes to saw a pole into three pieces, how long would it take her to saw a pole into five pieces?

24 min

23. [Problem Solving 2] *

Use the diagrams to calculate the weight of one black sphere.



2 kg

24. [Problem Solving 3]

Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r}
 209 \\
 + 175 \\
 \hline
 384
 \end{array}$$



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

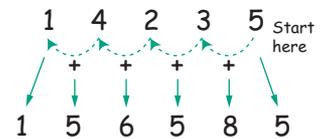
4. [÷ Whole Numbers to 10]

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

MULTIPLYING BY 11

Find the answer to multiplications like $14\ 235 \times 11 = 156\ 585$ easily.

- ◆ Write down the right hand digit, in this case 5.
- ◆ Add the digits in pairs, starting from the right.
- ◆ To finish, write down the left hand digit, in this case 1.



Try your skill:

$$\begin{array}{r} 2345 \times 11 \\ 38234 \times 11 \end{array}$$

Answers: 25795, 420574

5. [Large Number +]

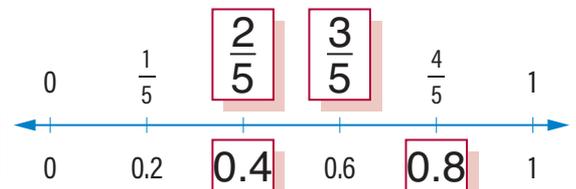
$$\begin{array}{r} 313 \\ 225 \\ 101 \\ + 20 \\ \hline 659 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 94 \\ \times 9 \\ \hline 846 \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 5182 \\ - 4041 \\ \hline 1141 \end{array}$$

9. [Decimals]

Write as a decimal:
sixty-three hundredths.

0.63

12. [Place Value]

Which digit in 456.2 is in the same place as the 9 in 9.78?

6

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 65 \\ \times 1000 \\ \hline 65000 \end{array}$$

10. [Fractions]

Mark $\frac{2}{3}$ with a circle and $\frac{1}{2}$ with a cross on the number line.



13. [Operations]

$$10 \times 9 = 9 \times 10$$

14. [Exploring Numbers]

Write in numerals:
eight thousand and one

8001

15. [Number Patterns / Equations]

$$48, 40, 32, 24, \underline{16}, \underline{8}$$

16. [Units of Measurement]

How many of these objects are likely to have a mass less than 1 kilogram?

- A car tyre
- A coffee table
- A mushroom
- A cup of hot chocolate

2

17. [Measuring]

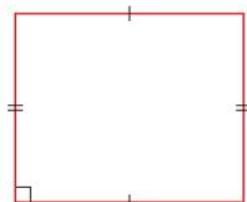
What is the weight of the fish?



3.4 kg

18. [Perimeter / Area] *

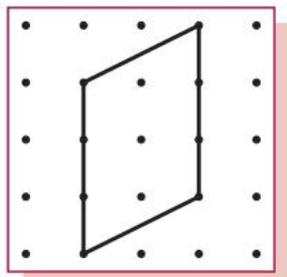
Using a ruler, measure the side lengths of the rectangle in millimetres. What is the perimeter of the rectangle?



110 mm

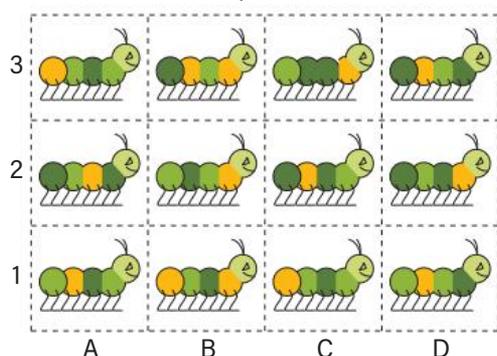
19. [Shapes]

Draw a parallelogram on the dotted grid. Make sure that all the vertices are on a dot.



20. [Location / Transformation]

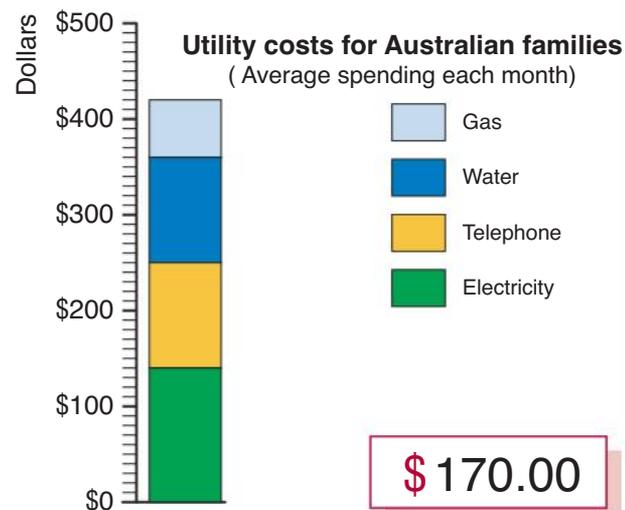
Find the grid references of the two identical caterpillars.



A3 and C1

21. [Statistics / Probability]

What is the combined average monthly cost of water and gas per family?



\$170.00

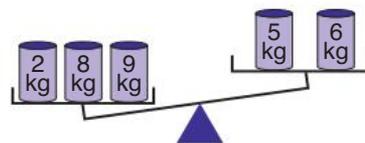
22. [Problem Solving 1] *

Outside Kaitlan's front gate there is a power pole. Along the street there are many more poles all evenly spaced. Starting at the first pole Kaitlan takes 30 seconds to jog to pole three. At this rate, how long will it take her to reach pole six?

75 s

23. [Problem Solving 2] *

Which two weights need to be swapped to balance the scales?



9 kg and 5 kg

24. [Problem Solving 3]

Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r}
 \boxed{1} \boxed{4} \boxed{6} \\
 + 807 \\
 \hline
 \boxed{9} \boxed{5} \boxed{3}
 \end{array}$$



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	6	2	1	3	10	4	7	8	5	9
× 3	18	6	3	9	30	12	21	24	15	27

4. [÷ Whole Numbers to 10]

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

UTC

The world is divided into 24 time zones. Travelling eastward, you must put your watch forward one hour as you pass into new time zones. As you move westward, you put your watch back one hour per zone. The 0° meridian of longitude runs through the town of Greenwich in England. The standard time common to every place in the world is now called the **Coordinated Universal Time (UTC)**, which replaced the old **Greenwich Mean Time (GMT)**.

5. [Large Number +]

$$\begin{array}{r} 49 \\ + 38 \\ \hline 87 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 400 \\ 2 \overline{) 800} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{8}{100}$ as a decimal.

0.08

6. [Large Number -]

$$\begin{array}{r} 42 \\ - 14 \\ \hline 28 \end{array}$$

9. [Decimals]

Write these cents in dollars:

5¢ = \$ 0.05

12. [Place Value]

What is the value of the digit 6 in the number 2670?

600

13. [Operations]

Which expression equals 5?

- A 0×5
- B $0 + 5$
- C $0 - 5$

B

7. [Powers of 10 ×, ÷]

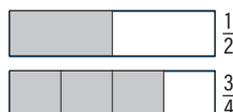
$80 \div 10 =$

8

10. [Fractions]

Shade the fraction bars to show $\frac{1}{2}$ and $\frac{3}{4}$.

Which fraction is greater?



$\frac{3}{4}$

14. [Exploring Numbers]

Write the number 319 in words.

three hundred and nineteen

15. [Number Patterns / Equations]

6 + 9 = 15

16. [Units of Measurement]

Convert to centimetres:

4 m = **400 cm**

17. [Measuring]

What time in the afternoon is shown on this clock?



i) 12-hour time format (am or pm):

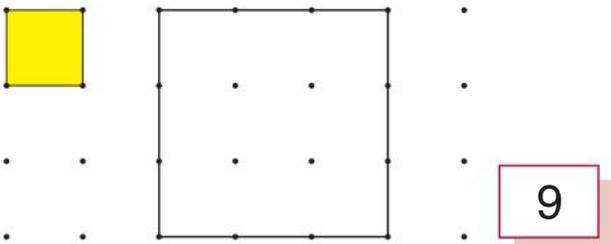
4 : 25 pm

ii) 24-hour time format:

16 : 25

18. [Perimeter / Area]

How many small squares are needed to cover the larger square?



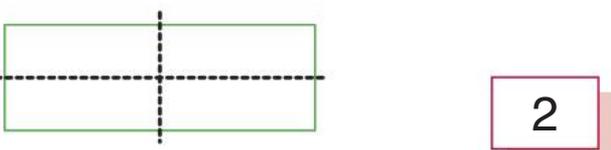
19. [Shapes]

How many sides does a kite have?



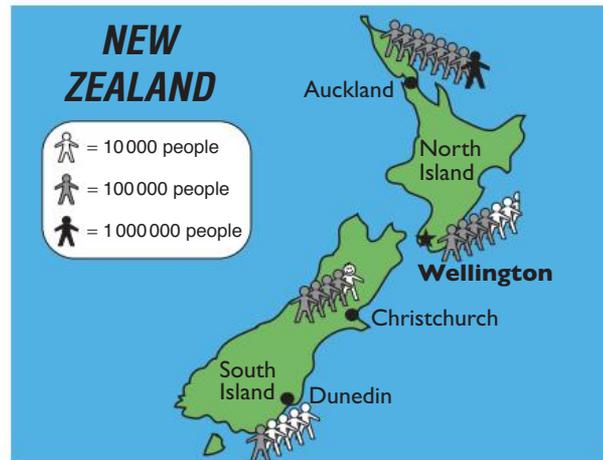
20. [Location / Transformation]

Draw the lines of symmetry through this rectangle. How many lines of symmetry does this rectangle have?



21. [Statistics / Probability]

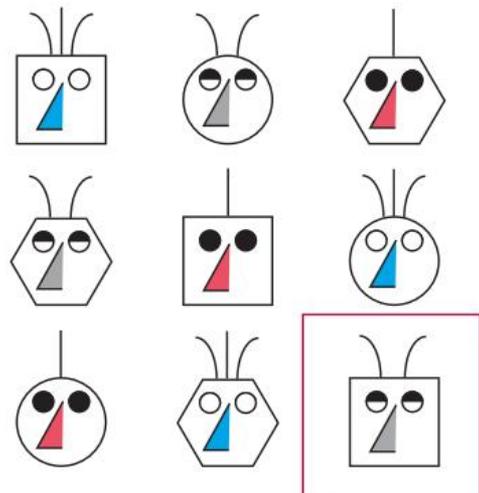
What was the population of Christchurch in 2024?



410 000

22. [Problem Solving 1]

Draw the missing face.



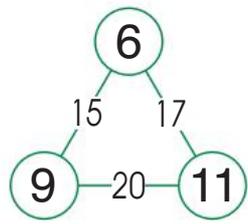
23. [Problem Solving 2] *

A teacher spent \$64 buying two types of games. One type cost \$12 each and the other \$14 each. How many of the \$12 games did she buy?

3

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.



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Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	3	6	9	1	7	2	10	5	4	8
× 5	15	30	45	5	35	10	50	25	20	40

4. [÷ Whole Numbers to 10]

	24	15	3	30	27	21	9	12	6	18
÷ 3	8	5	1	10	9	7	3	4	2	6

5. [Large Number +]

$$\begin{array}{r} 32 \\ 15 \\ + 14 \\ \hline 61 \end{array}$$

6. [Large Number ⊖]

$$\begin{array}{r} 73 \\ - 25 \\ \hline 48 \end{array}$$

7. [Powers of 10 ×, ÷]

$$340 \div 10 = 34$$

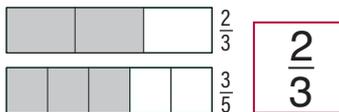
8. [Large Number ×, ÷]

$$\begin{array}{r} 1221 \\ 2 \overline{) 2442} \end{array}$$

9. [Decimals]
Write these cents in dollars:

$$105\text{¢} = \$1.05$$

10. [Fractions]
Shade the fraction bars to show $\frac{2}{3}$ and $\frac{3}{5}$.
Which fraction is greater?



$$\frac{2}{3}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{3}{1000}$ as a decimal.

$$0.003$$

12. [Place Value]
What is the value of the digit 7 in the number 437.92?

$$7$$

13. [Operations]
 $3 \times 1 = 3$

14. [Exploring Numbers]
Write the number 2006 in words.

two thousand and six

15. [Number Patterns / Equations]

$$13 + 11 = 24$$

DATE LINE

The **International Date Line** is an imaginary line running north-south down through the Pacific Ocean following the 180° east line of longitude. (This makes it directly opposite Greenwich, England.)

Move westward across the International Date Line and you move forward one day.
i.e. Sunday becomes Monday.

Move eastward and you gain a day.
i.e. Monday becomes Sunday.

16. [Units of Measurement]

Convert to centimetres:

300 mm = **30 cm**

17. [Measuring]

What time in the evening is shown on this watch?



i) 12-hour time format (am or pm):

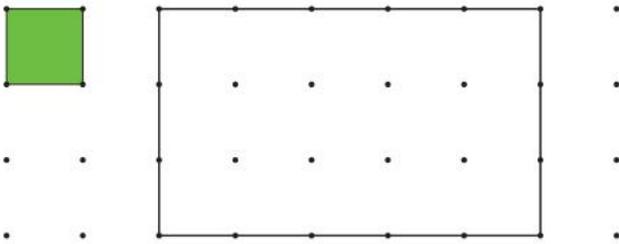
8 : 50 pm

ii) 24-hour time format:

20 : 50

18. [Perimeter / Area]

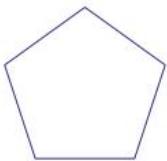
How many small squares are needed to cover the rectangle?



15

19. [Shapes]

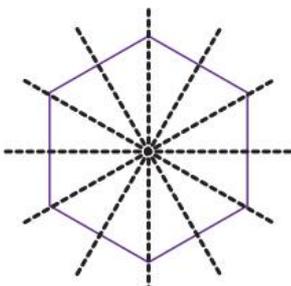
How many interior angles does a pentagon have?



5

20. [Location / Transformation]

Draw the lines of symmetry through this regular hexagon. How many lines of symmetry does this hexagon have?



6

21. [Statistics / Probability]

How much Monopoly money do you get at the start of the game?

Monopoly start-up money



Note value

\$ 1500

22. [Problem Solving 1]

Draw the missing house.



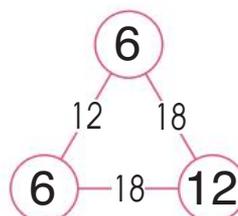
23. [Problem Solving 2] *

Jo spent \$53 on tulips and orchids. The tulips cost \$6 each and the orchids cost \$7 each. If she bought 8 flowers in all, how many tulips did she buy?

3

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

LEAP YEARS

Most years have 365 days. Since the true length of a year is about 365 days, 5 hours and 49 minutes we have to add an extra day to some years.

Every four years the extra hours almost add to a full day. That is why after every four years an extra day is usually included.

Are we in a leap year?

If the last two digits of a given year e.g. 2020 can be evenly divided by 4, then the year is a leap year.

For a century year, e.g. 2000, the first two digits must be evenly divided by 4.

5. [Large Number +]

$$\begin{array}{r} 1422 \\ 2145 \\ + 2217 \\ \hline 5784 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 3000 \\ 3 \overline{)9000} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 0.47 as a fraction.

$$\frac{47}{100}$$

6. [Large Number -]

$$\begin{array}{r} 85 \\ - 59 \\ \hline 26 \end{array}$$

9. [Decimals]

$$\$2.25 + \$3.55 =$$

$$\$5.80$$

12. [Place Value]

What is the value of the digit 9 in the number 50.912?

$$\text{or } 0.9 \frac{9}{10}$$

13. [Operations]

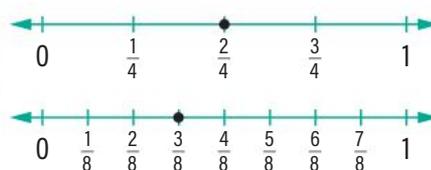
$$4 + 0 = 4$$

7. [Powers of 10 ×, ÷]

$$250 \div 10 =$$

$$25$$

10. [Fractions]



Use <, = or > to make this statement true.

$$\frac{2}{4} > \frac{3}{8}$$

14. [Exploring Numbers]

Write the number 5041 in words.

five thousand and forty-one

15. [Number Patterns / Equations]

$$20 - 14 = 6$$

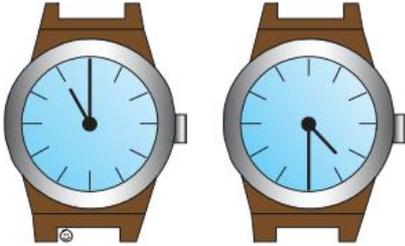
16. [Units of Measurement]

Convert to millimetres:

$$6.3 \text{ cm} = \boxed{63 \text{ mm}}$$

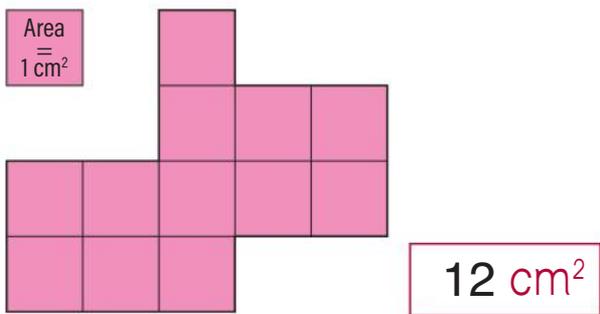
17. [Measuring]

Draw hands on the second watch to show the time 6 hours and 30 minutes earlier than the first.



18. [Perimeter / Area]

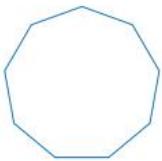
Find the area of this shape.



$$\boxed{12 \text{ cm}^2}$$

19. [Shapes]

How many interior angles does a nonagon have?



$\boxed{9}$

20. [Location / Transformation]

The shape has:

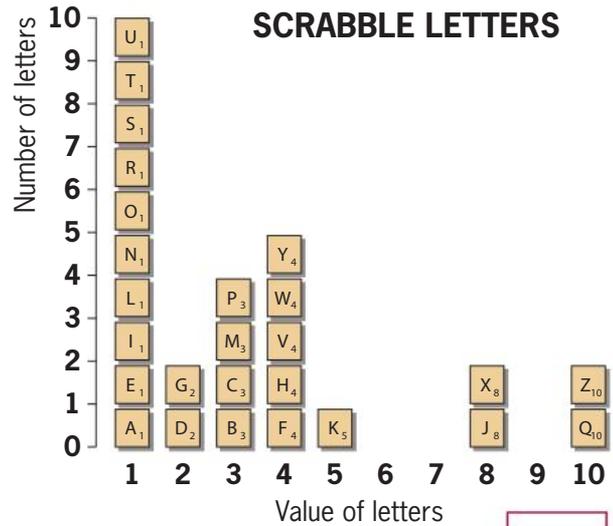
- A line symmetry
- B rotational symmetry
- C both line and rotational symmetry



\boxed{A}

21. [Statistics / Probability]

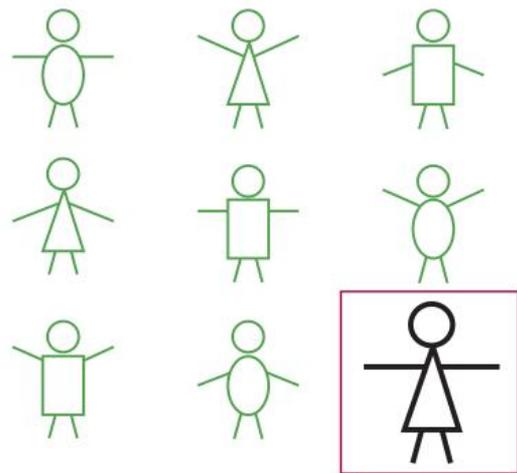
How many Scrabble letters have a value of four?



$\boxed{5}$

22. [Problem Solving 1]

Draw the missing figure.



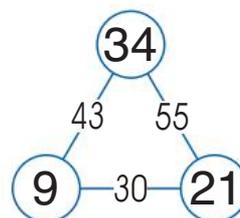
23. [Problem Solving 2] *

There are 92 beds in a 40-room motel. Each room has either 2 or 3 beds. How many rooms have 2 beds?

$\boxed{28}$

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.



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Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

5. [Large Number +]

$$\begin{array}{r} 212 \\ 108 \\ 177 \\ + 301 \\ \hline 798 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 2011 \\ 4 \overline{) 8044} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 0.081 as a fraction.

$$\frac{81}{1000}$$

6. [Large Number -]

$$\begin{array}{r} 954 \\ - 607 \\ \hline 347 \end{array}$$

9. [Decimals]

$$\$4.40 + \$4.75 =$$

$$\$9.15$$

12. [Place Value]

What is the value of the digit 3 in the number 2.403?

$$\frac{3}{1000} \quad \text{or} \quad 0.003$$

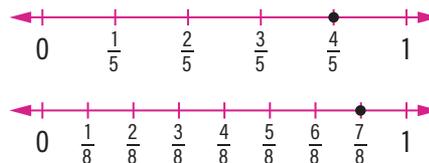
13. [Operations]

Which expression equals 8?

- A $1 \div 8$
- B $1 - 8$
- C 1×8

C

10. [Fractions]



7. [Powers of 10 ×, ÷]

$$600 \div 10 =$$

$$60$$

Use $<$, $=$ or $>$ to make this statement true.

$$\frac{4}{5} < \frac{7}{8}$$

14. [Exploring Numbers]

Write the number 15 800 in words.

fifteen thousand, eight hundred

15. [Number Patterns / Equations]

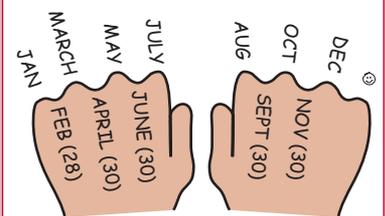
$$25 - 8 = 17$$

DAYS IN A MONTH

Thirty days has September, April, June and November.

All the rest have thirty-one, Except February alone, Which has twenty-eight days clear, And twenty-nine in each leap year.

Months with 31 days are on the knuckles.



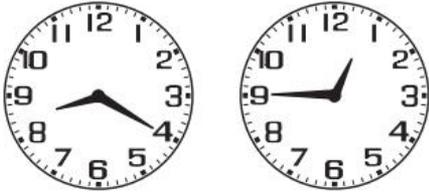
16. [Units of Measurement]

Convert to metres:

$$1.25 \text{ km} = \boxed{1250 \text{ m}}$$

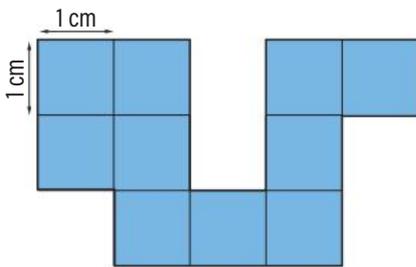
17. [Measuring]

Draw hands on the second clock to show the time 4 hours and 25 minutes later than the first.



18. [Perimeter / Area]

Find the area of this shape.



$$\boxed{10 \text{ cm}^2}$$

19. [Shapes]

How many sides does a heptagon have?



7

20. [Location / Transformation]

The shape has:

- A line symmetry
- B rotational symmetry
- C both line and rotational symmetry

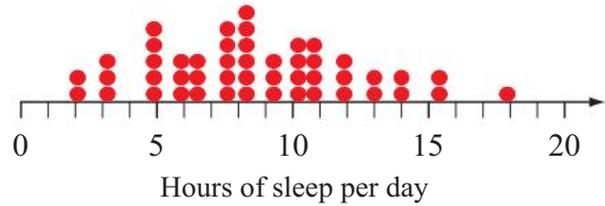


B

21. [Statistics / Probability]

Estimate to the nearest hour, the most common number of hours of sleep required by a mammal.

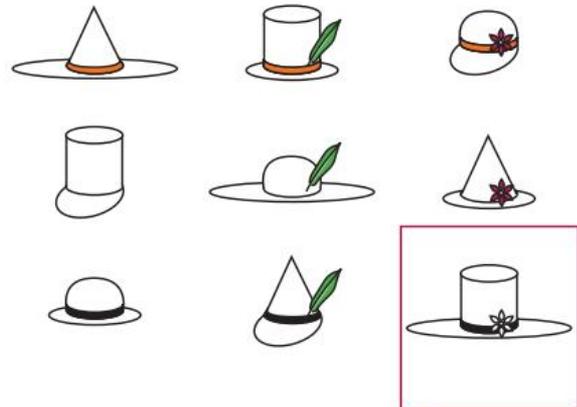
Average Daily Sleep - 48 mammals



8 h

22. [Problem Solving 1]

Draw the missing hat.



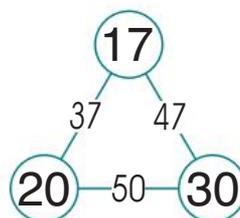
23. [Problem Solving 2] *

A geometric pattern is made using 17 triangles and squares. If the triangles and squares have a total of 64 sides, how many triangles were used?

4

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.



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Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

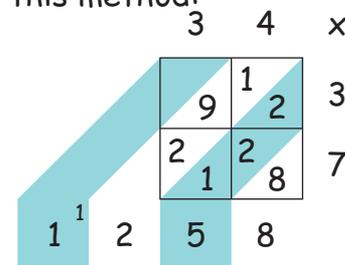
	9	7	8	6	5	3	4	1	2	10
× 3	27	21	24	18	15	9	12	3	6	30

4. [÷ Whole Numbers to 10]

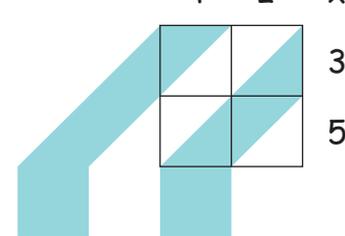
	90	18	27	45	81	72	63	36	54	9
÷ 9	10	2	3	5	9	8	7	4	6	1

CHINESE LATTICE

Multiply 34×37 using this method:



Try 42×35



Answer: 1470

5. [Large Number +]

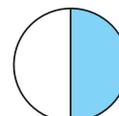
$$\begin{array}{r} 239 \\ + 145 \\ \hline 384 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 450 \\ \times 6 \\ \hline 2700 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 50% as a fraction in simplest form.



$$\frac{1}{2}$$

6. [Large Number -]

$$\begin{array}{r} 200 \\ - 5 \\ \hline 195 \end{array}$$

9. [Decimals]

How much change will you receive from \$5.00 if you spend \$2.65?

$$\text{\$ } 2.35$$

12. [Place Value]

In which number does the digit 4 have a smaller value?

A 1435

B 247

B

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 2571 \\ \times 10 \\ \hline 25710 \end{array}$$

10. [Fractions]

Complete to form equivalent fractions:

$$\frac{3}{4} = \frac{6}{8}$$

13. [Operations] *

$$19 + 3 - 3 =$$

$$19$$

14. [Exploring Numbers]

Complete the next two multiples of 9.

$$9, 18, 27, \underline{36}, \underline{45}$$

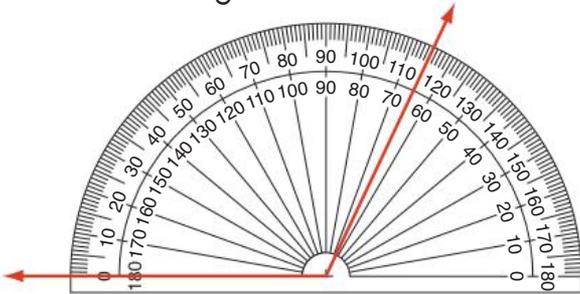
15. [Number Patterns / Equations]

$$30, 60, 120, 240, \underline{480}, \underline{960}$$

16. [Units of Measurement]
Convert to grams:

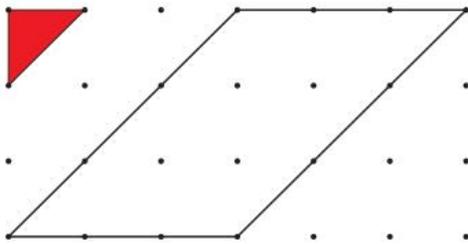
$$6 \text{ kg} = \boxed{6000 \text{ g}}$$

17. [Measuring]
Use the protractor to measure the size of this angle.



$\boxed{115^\circ}$

18. [Perimeter / Area]
How many small triangles are needed to cover the parallelogram?



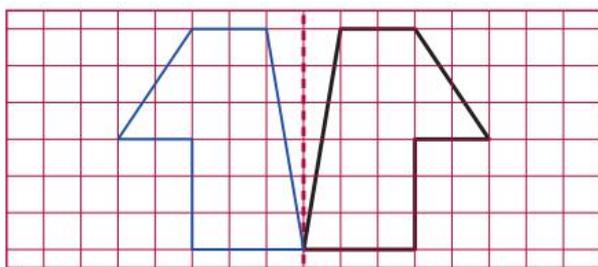
$\boxed{18}$

19. [Shapes]
I am a quadrilateral. I have both pairs of sides parallel. I have two acute and two obtuse angles. What shape am I?

- A square
- B parallelogram
- C rectangle

\boxed{B}

20. [Location / Transformation]
Redraw this polygon after reflecting it in the dotted line.



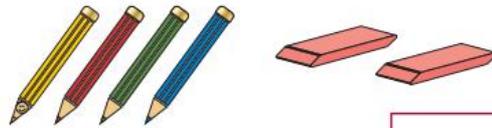
21. [Statistics / Probability]
Which region had the smallest decrease in their birth rate between the two periods shown?

**Projected Population Birth Rates
by Geographic Region**

REGION	Birth rate (per 1000)	
	1985 - 1990	2020 - 2025
AFRICA	45	24
AMERICA	23	15
ASIA	27	17
EUROPE	14	13
OCEANIA	20	15

$\boxed{\text{Europe}}$

22. [Problem Solving 1] *
Four pencils cost as much as two erasers. How much are twelve pencils if one eraser is \$1.50?



$\boxed{\$9.00}$

23. [Problem Solving 2]
Fill in the missing digits in the sum.

$$\begin{array}{r} 3 \boxed{7} \\ + \boxed{2} 8 \\ \hline 6 \ 5 \end{array}$$

24. [Problem Solving 3]
Complete the multiplication table.

×	5	4	2
4	20	16	8
6	30	24	12
8	40	32	16





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

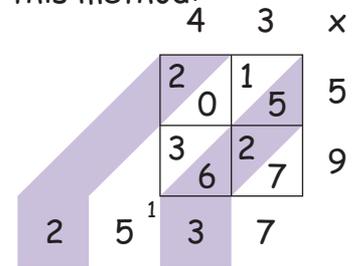
	5	7	1	6	2	3	10	9	4	8
× 9	45	63	9	54	18	27	90	81	36	72

4. [÷ Whole Numbers to 10]

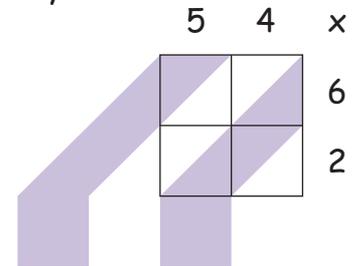
	12	24	8	32	16	4	40	20	28	36
÷ 4	3	6	2	8	4	1	10	5	7	9

CHINESE LATTICE

Multiply 43×59 using this method:



Try 54×62



Answer: 3348

5. [Large Number +]

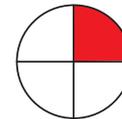
$$\begin{array}{r} 12 \\ 25 \\ + 36 \\ \hline 73 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 704 \\ \times 8 \\ \hline 5632 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 25% as a fraction in simplest form.



$$\frac{1}{4}$$

6. [Large Number -]

$$\begin{array}{r} 400 \\ - 8 \\ \hline 392 \end{array}$$

9. [Decimals]

How much change will you receive from \$4.00 if you spend \$3.25?

$$\$ 0.75$$

12. [Place Value]

In which number does the digit 8 have a greater value?

- A 28 700
B 27 800

$$A$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 422 \\ \times 100 \\ \hline 42200 \end{array}$$

10. [Fractions]

Complete to form equivalent fractions:

$$\frac{2}{5} = \frac{8}{20}$$

13. [Operations] *

$$25 \times 6 \div 6 =$$

$$25$$

14. [Exploring Numbers]

Which list has only factors of 21?

- A 1, 3, 21
B 2, 7, 21

$$A$$

15. [Number Patterns / Equations]

$$2, 6, 18, 54, \underline{162}, \underline{486}$$

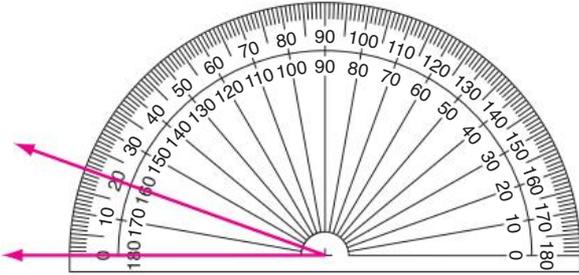
16. [Units of Measurement]

Convert to kilograms:

2 tonnes = **2000 kg**

17. [Measuring]

Use the protractor to measure the size of this angle.



20°

21. [Statistics / Probability]

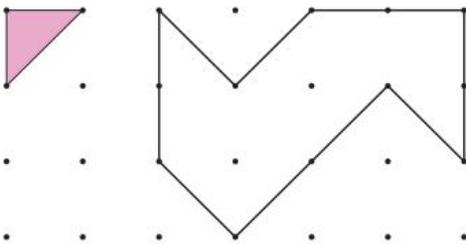
You have 100 grams of porridge and 100 grams of orange juice for breakfast. How many calories have you consumed?

Energy of Breakfast Foods		
Food	Energy per 100 grams	
	kilojoules (kJ)	calories
Cornflakes	1654	395
Rice Bubbles	1603	383
Porridge	1579	377
Orange Juice	188	45
Milk (whole)	272	65
Raisin Toast	1176	280

422

18. [Perimeter / Area]

How many small triangles are needed to cover the shape?



14

22. [Problem Solving 1] *

Two hammers cost as much as three screwdrivers. How much are four screwdrivers, if one hammer is \$30?



\$ 80.00

19. [Shapes]

I am a quadrilateral. I have both pairs of sides parallel. My angles are all right angles. My diagonals are equal in length, but they do not cross at right angles. What shape am I?

- A rectangle
- B square
- C kite

A

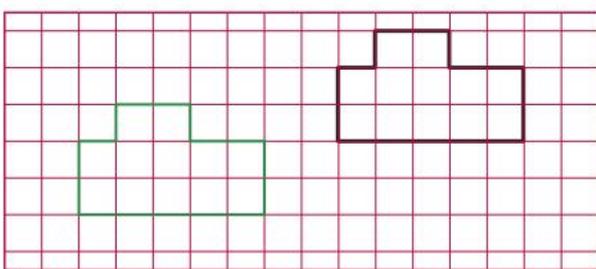
23. [Problem Solving 2]

Fill in the missing digits in the sum.

$$\begin{array}{r}
 4 \quad \boxed{2} \quad 6 \\
 + \quad \boxed{3} \quad 7 \quad 8 \\
 \hline
 8 \quad 0 \quad \boxed{4}
 \end{array}$$

20. [Location / Transformation]

Redraw this polygon after translating it 7 units to the right and 2 units up.



24. [Problem Solving 3]

Complete the multiplication table.

×	9	5	6
3	27	15	18
7	63	35	42
5	45	25	30





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

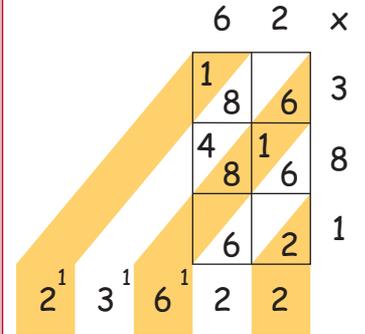
	10	6	4	5	2	1	7	3	8	9
× 5	50	30	20	25	10	5	35	15	40	45

4. [÷ Whole Numbers to 10]

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

CHINESE LATTICE

Multiply 62×381 using the Chinese Lattice method:



Try setting up a grid to multiply 92×513

Answer: 47196

5. [Large Number +]

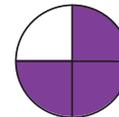
$$\begin{array}{r} 459 \\ + 205 \\ \hline 664 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 803 \\ \times 5 \\ \hline 4015 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 75% as a fraction in simplest form.



$$\frac{3}{4}$$

6. [Large Number -]

$$\begin{array}{r} 700 \\ - 3 \\ \hline 697 \end{array}$$

9. [Decimals]

How much change will you receive from \$5.00 if you spend \$1.05?

$$\$ 3.95$$

12. [Place Value]

In which number does the digit 2 have a greater value?

- A 73.12
B 69.542

A

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 304 \\ \times 100 \\ \hline 30400 \end{array}$$

10. [Fractions]

Complete to form equivalent fractions:

$$\frac{9}{15} = \frac{3}{5}$$

13. [Operations] *

$$18 - 7 + 7 =$$

$$18$$

14. [Exploring Numbers]

Which list has only factors of 32?

- A 1, 2, 6, 32
B 1, 4, 16, 32

B

15. [Number Patterns / Equations]

$$96, 48, 24, 12, \underline{6}, \underline{3}$$

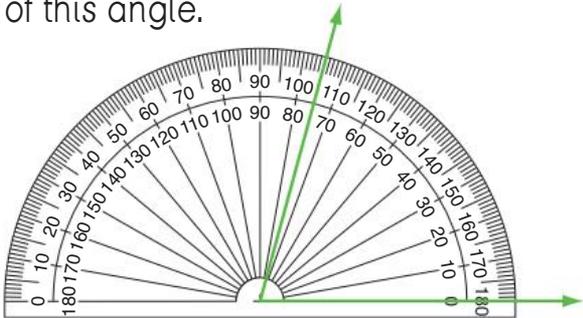
16. [Units of Measurement]

Convert to tonnes:

$$15\,000 \text{ kg} = \boxed{15 \text{ t}}$$

17. [Measuring]

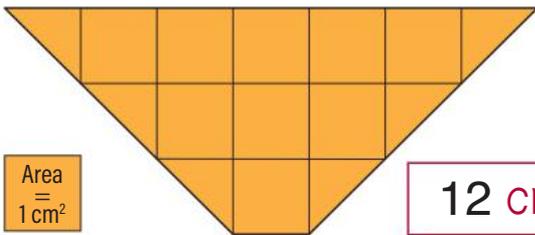
Use the protractor to measure the size of this angle.



75°

18. [Perimeter / Area]

Find the area of this trapezium.



12 cm^2

19. [Shapes]

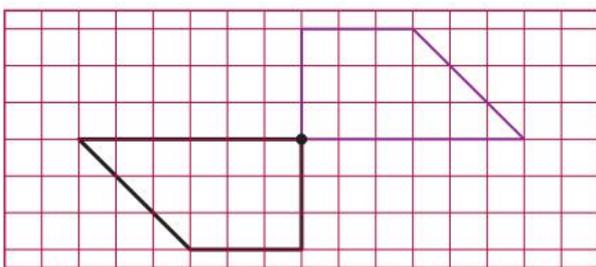
I am a quadrilateral. I have all sides equal in length. My diagonals are equal in length and cross at right angles. What shape am I?

- A rectangle
- B rhombus
- C square

C

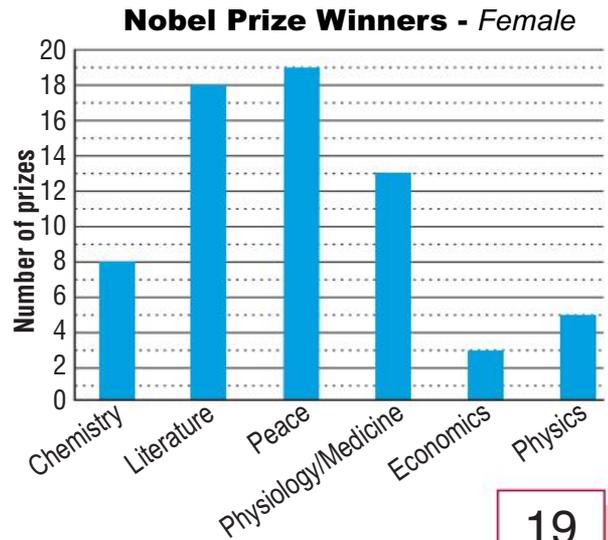
20. [Location / Transformation]

Redraw this trapezium after rotating it 180° around the marked point.



21. [Statistics / Probability]

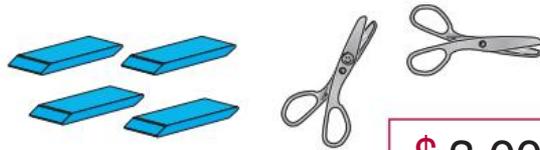
How many Nobel prizes for Peace have been won by women before 2025?



19

22. [Problem Solving 1] *

Four erasers cost as much as two pairs of scissors. How much is one pair of scissors, if one eraser is \$1.50?



\$ 3.00

23. [Problem Solving 2]

Fill in the missing digits in the sum.

$$\begin{array}{r} 11\boxed{7} \\ 532 \\ + \boxed{2}69 \\ \hline 9\boxed{1}8 \end{array}$$

24. [Problem Solving 3]

Complete the multiplication table.

×	8	4	2
3	24	12	6
6	48	24	12
1	8	4	2





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

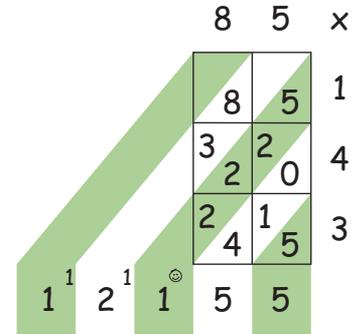
	3	10	7	1	4	2	9	8	5	6
× 6	18	60	42	6	24	12	54	48	30	36

4. [÷ Whole Numbers to 10]

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

CHINESE LATTICE

Multiply 85×143 using the Chinese Lattice method:



Try setting up a grid to multiply 54×273

Answer: 14 742

5. [Large Number +]

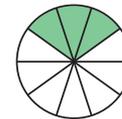
$$\begin{array}{r} 333 \\ + 529 \\ \hline 862 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 240 \\ \times 7 \\ \hline 1680 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 30% as a fraction in simplest form.



$$\frac{3}{10}$$

6. [Large Number -]

$$\begin{array}{r} 800 \\ - 6 \\ \hline 794 \end{array}$$

9. [Decimals]

How much change will you receive from \$10.00 if you spend \$4.15?

$$\$ 5.85$$

12. [Place Value]

In which number does the digit 6 have a greater value?

A 902.365

B 89.612

B

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 115 \\ \times 1000 \\ \hline 115000 \end{array}$$

10. [Fractions]

Complete to form equivalent fractions:

$$\frac{3}{12} = \frac{1}{4}$$

13. [Operations] *

$$28 \div 7 \times 7 =$$

$$28$$

14. [Exploring Numbers]

Complete the next two multiples of 12.

$$12, 24, 36, \underline{48}, \underline{60}$$

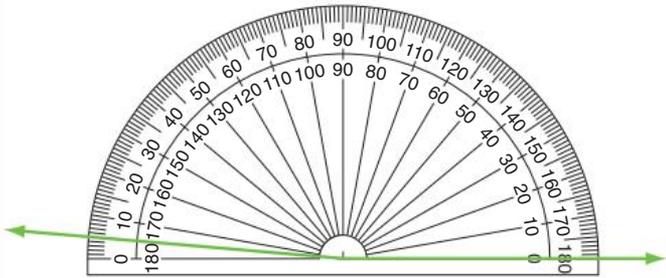
15. [Number Patterns / Equations]

$$800, 400, 200, 100, \underline{50}, \underline{25}$$

16. [Units of Measurement]
Convert to grams:

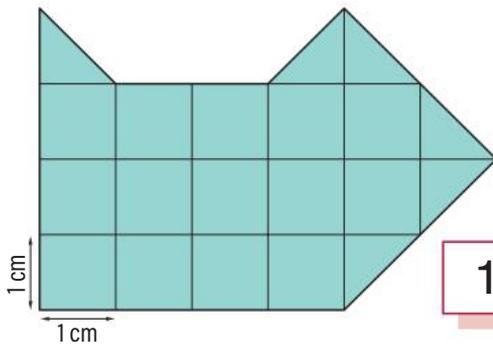
$$3.8 \text{ kg} = \boxed{3800 \text{ g}}$$

17. [Measuring]
Use the protractor to measure the size of this angle.



$\boxed{175^\circ}$

18. [Perimeter / Area]
Find the area of this shape.



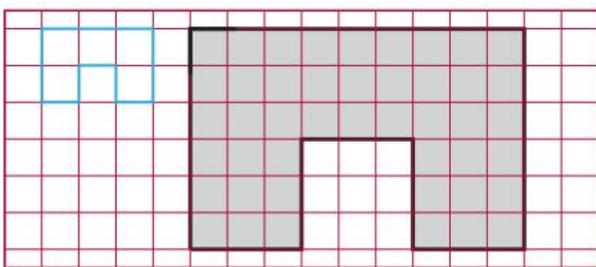
$\boxed{17 \text{ cm}^2}$

19. [Shapes]
I am a quadrilateral. I have only one pair of parallel sides. What shape am I?

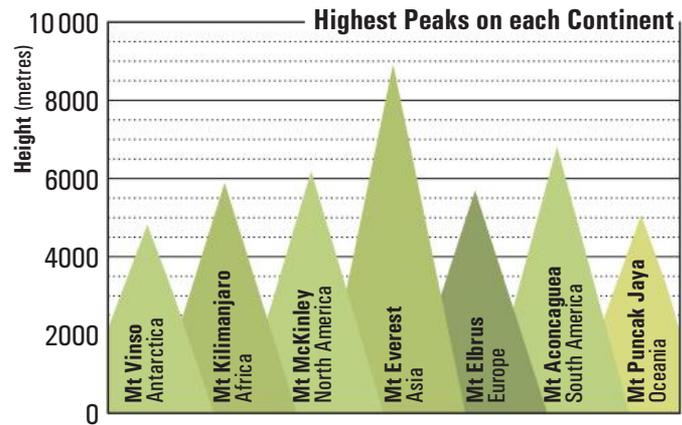
- A parallelogram
- B rhombus
- C trapezium

\boxed{C}

20. [Location / Transformation]
Redraw this shape after tripling its size.



21. [Statistics / Probability]
To the nearest thousand metres, what is the height of Mount McKinley, the highest peak in North America?



$\boxed{6000 \text{ m}}$

22. [Problem Solving 1] *
Five ballpoint pens cost as much as two fountain pens. How much are six fountain pens if one ballpoint pen costs \$1?



$\boxed{\$ 15.00}$

23. [Problem Solving 2]
Fill in the missing digits in the sum.

$$\begin{array}{r} 34\boxed{7} \\ 247 \\ + 1\boxed{4}7 \\ \hline \boxed{7}41 \end{array}$$

24. [Problem Solving 3]
Complete the multiplication table.

×	3	7	4
9	27	63	36
1	3	7	4
2	6	14	8





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	80	50	10	100	90	70	30	40	20	60
÷ 10	8	5	1	10	9	7	3	4	2	6

ROMAN NUMERALS

The Roman number system can still be seen today: on clock faces, movie release dates, foundation stones of buildings and on tombstones.

I	1
V	5
X	10
L	50
C	100
D	500
M	1000

5. [Large Number +]

$$\begin{array}{r} 474 \\ + 135 \\ \hline 609 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 94 \\ 2 \overline{) 188} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number $2\frac{1}{2}$ as a decimal. **2.5**

6. [Large Number -]

$$\begin{array}{r} 900 \\ - 66 \\ \hline 834 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 2.99 \\ + 17.5 \\ \hline 20.49 \end{array}$$

12. [Place Value]

$6892 < 6982$
True or false? **true**

13. [Operations] *

$5 + 6 - 4 =$ **7**

7. [Powers of 10 ×, ÷]

$500 \div 100 =$ **5**

10. [Fractions]
Simplify: $\frac{3}{9}$

$\frac{1}{3}$

15. [Number Patterns / Equations]

5 $\times 7 = 35$

14. [Exploring Numbers]

Which number is a prime?
21, 23 or 25 **23**

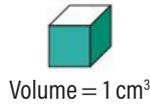
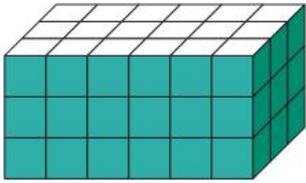
16. [Units of Measurement]

Convert to millilitres:

$$7 \text{ L} = 7000 \text{ mL}$$

17. [Measuring]

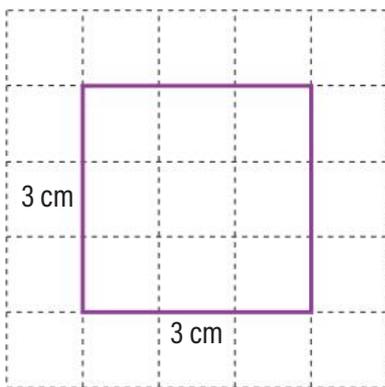
Count the cubes to find the volume of the prism.



$$54 \text{ cm}^3$$

18. [Perimeter / Area]

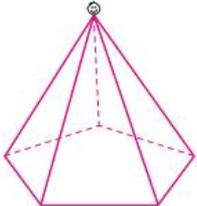
Find the perimeter of the square.



$$12 \text{ cm}$$

19. [Shapes]

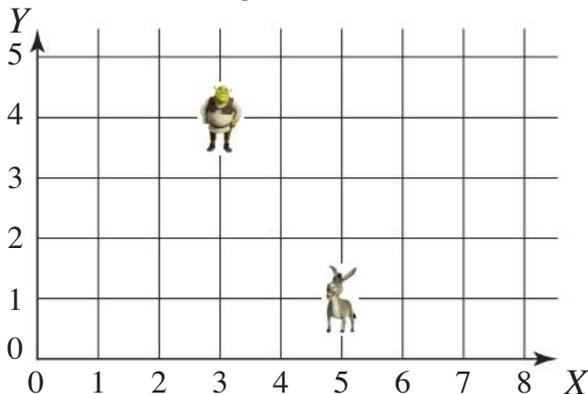
How many edges does a pentagonal pyramid have?



$$10$$

20. [Location / Transformation]

What are the coordinates of Shrek and Donkey on the grid?



$$\text{Shrek} = (3, 4) \quad \text{Donkey} = (5, 1)$$

21. [Statistics / Probability]

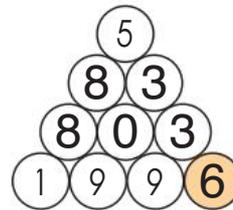
Leo has seven 20-cent coins and five 10-cent coins in his pocket. What is the chance that the first coin he takes out will be a 20-cent coin?

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

C

22. [Problem Solving 1]

A single digit number belongs in each circle, and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



6

23. [Problem Solving 2] *

Bobby's car uses 9 litres of fuel per 100 km. How many litres of fuel are required to travel from Kogan to Tingura?



$$36 \text{ L}$$

24. [Problem Solving 3] *

Each letter represents a different digit from 1 to 9. If T is the only odd digit, what number does TWO stand for?

$$\begin{array}{r} \text{ONE} \\ + \text{ONE} \\ \hline \text{TWO} \end{array}$$

$$\text{TWO} = 964$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	30	20	10	35	40	45	50	25	15	5
÷ 5	6	4	2	7	8	9	10	5	3	1

ROMAN NUMERALS

Symbols V, L and D are never repeated.

Symbols I, X, C and M can be used two or three times in a row.

II	=	2
III	=	3
XX	=	20
XXX	=	30
CC	=	200
CCC	=	300
MM	=	2000
MMM	=	3000

5. [Large Number +]

$$\begin{array}{r} 582 \\ + 393 \\ \hline 975 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 90 \\ 5 \overline{) 450} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number $3\frac{1}{5}$ as a decimal. **3.2**

6. [Large Number -]

$$\begin{array}{r} 500 \\ - 59 \\ \hline 441 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 9.42 \\ + 3.6 \\ \hline 13.02 \end{array}$$

12. [Place Value]

Which number is greater?
0.357 or 0.375 **0.375**

13. [Operations] *

$18 - 9 - 2 =$ **7**

14. [Exploring Numbers]

List the composite numbers between 11 and 19.

12, 14, 15, 16, 18

7. [Powers of 10 ×, ÷]

$3200 \div 100 =$ **32**

10. [Fractions]
Simplify: $\frac{30}{50}$

$\frac{3}{5}$

15. [Number Patterns / Equations]

$6 \times$ **8** $= 48$

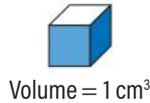
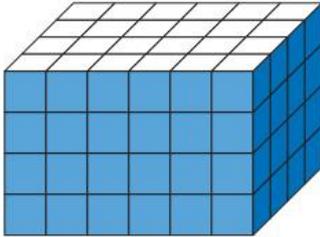
16. [Units of Measurement]

Convert to litres:

$$9000 \text{ mL} = \boxed{9 \text{ L}}$$

17. [Measuring]

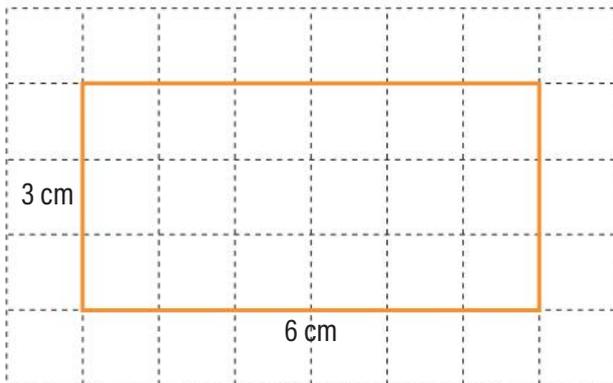
Count the cubes to find the volume of the prism.



$$\boxed{96 \text{ cm}^3}$$

18. [Perimeter / Area]

Find the perimeter of the rectangle.



$$\boxed{18 \text{ cm}}$$

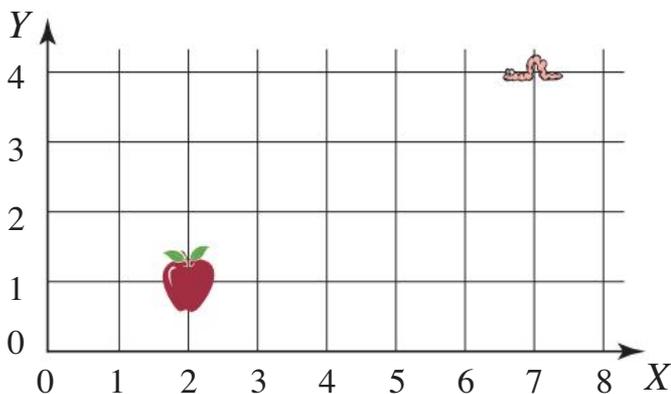
19. [Shapes]

How many faces are there on a rectangular pyramid?

5

20. [Location / Transformation]

What are the coordinates of the worm and the apple on the grid?



$$\boxed{\text{worm} = (7, 4) \text{ apple} = (2, 1)}$$

21. [Statistics / Probability]

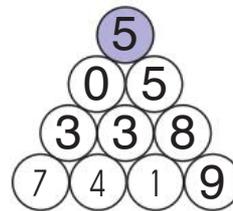
In a lotto draw, balls 1 to 50 are mixed together. A machine then randomly selects balls numbered 13, 11, 7, 27 and 41. Is the sixth number drawn:

- A more likely to be odd than even,
- B more likely to be even than odd, or
- C just as likely to be odd as even?

B

22. [Problem Solving 1]

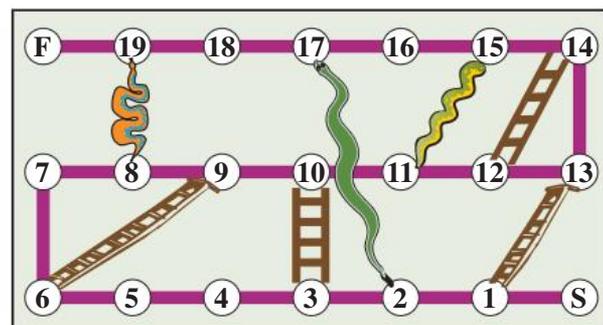
A single digit number belongs in each circle, and it must equal the difference between the two numbers it sits on. What is the largest number that can go in the shaded circle?



5

23. [Problem Solving 2]

Jane rolls nothing but sixes in the game of snakes and ladders below. How many rolls of the die will it take her to move from S to F?



6

24. [Problem Solving 3] *

Each letter represents a different digit from 1 to 9. If R = 8, what number does FOUR stand for?

$$\begin{array}{r} \text{TWO} \\ + \text{TWO} \\ \hline \text{FOUR} \end{array}$$

$$\boxed{\text{FOUR} = 1468}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	2	4	10	1	8	9	6	7	5	3
× 10	20	40	100	10	80	90	60	70	50	30

4. [÷ Whole Numbers to 10]

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

ROMAN NUMERALS

To represent numbers greater than V, X, L, C, D, or M add lower value symbols to the right-hand side keeping them in order of largest value to smallest value.

VI = 6	LX = 60
VII = 7	LXVI = 66
VIII = 8	LXXVI = 76
XI = 11	LXXX = 80
XII = 12	CXII = 112
XIII = 13	CXXII = 122
XV = 15	CL = 150
XVI = 16	DCCI = 701
XVII = 17	DCVII = 607
XVIII = 18	DCCC = 800

5. [Large Number +]

$$\begin{array}{r} 4182 \\ + 5035 \\ \hline 9217 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 700 \\ 8 \overline{)5600} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the improper fraction $\frac{17}{10}$ as a decimal.

1.7

6. [Large Number -]

$$\begin{array}{r} 300 \\ - 38 \\ \hline 262 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 0.25 \\ 5.38 \\ + 2.75 \\ \hline 8.38 \end{array}$$

12. [Place Value]

0.105 > 0.15
True or false?

false

7. [Powers of 10 ×, ÷]

$$6700 \div 100 =$$

67

10. [Fractions]

Which of the following fractions **cannot** be simplified?

- A $\frac{6}{8}$ B $\frac{5}{8}$ C $\frac{4}{8}$ D $\frac{3}{8}$

B and D

13. [Operations] *

$$2 \times 4 \times 3 =$$

24

14. [Exploring Numbers]

Which of the following is **not** a composite number?
27, 28 or 29

29

15. [Number Patterns / Equations]

$$7 \times 9 = 63$$

16. [Units of Measurement]

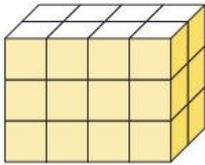
Convert to litres:

$$40\,000 \text{ mL} = \boxed{40 \text{ L}}$$

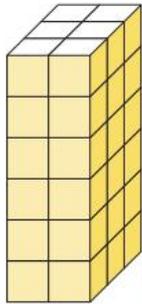
17. [Measuring]

Which prism has the lesser volume?

A



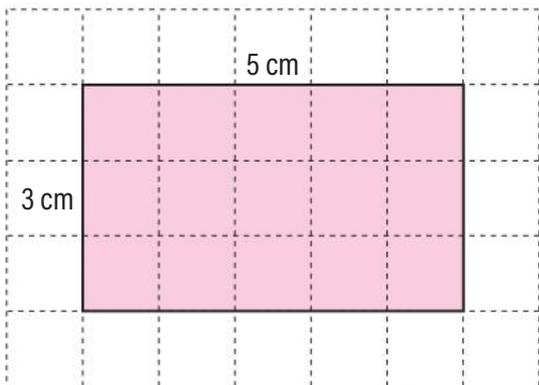
B



A

18. [Perimeter / Area]

Find the area of the shaded rectangle.

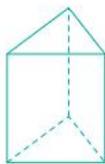


$$\boxed{15 \text{ cm}^2}$$

19. [Shapes]

What is the name of this shape?

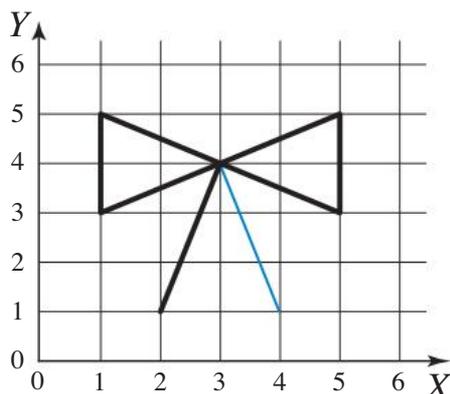
- A triangular prism
- B triangular pyramid
- C rectangular pyramid
- D rectangular prism



A

20. [Location / Transformation]

Start at (3,4). Draw a line to (5,5) and continue to (5,3), (1,5), (1,3), (3,4) and (2,1).



21. [Statistics / Probability]

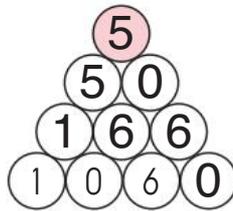
A bag contains 4 red, 6 yellow and 7 blue raffle tickets. What is the chance that the first ticket drawn will be black?

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

A

22. [Problem Solving 1]

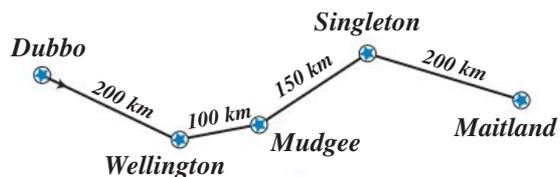
A single digit number belongs in each circle, and it must equal the difference between the two numbers it sits on. What is the largest number that can go in the shaded circle?



5

23. [Problem Solving 2] *

Jack's car can travel 15 kilometres per litre of petrol. He leaves Dubbo with 30 litres of petrol in his car and drives towards Maitland. Which town will he be closest to when he runs out of petrol?



Singleton

24. [Problem Solving 3] *

The letters A, B and C stand for different digits from 1 to 9. If $A < B < C$, what digit does each letter represent?

$$\begin{array}{r} A B C \\ B C A \\ + C A B \\ \hline 7 7 7 \end{array}$$

$$\boxed{A = 1 \quad B = 2 \quad C = 4}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

ROMAN NUMERALS

Place an I before a V or an X to reduce the value by 1.

Place an X before an L or a C to reduce the value by 10.

Place a C before a D or an M to reduce the value by 100.

IV = 4	IX = 9
XL = 40	XC = 90
CD = 400	CM = 900

Note these:

8 is VIII not IIX
14 is XIV not IXV
99 is XCIX not IC

5. [Large Number +]

$$\begin{array}{r} 71 \\ 45 \\ + 73 \\ \hline 189 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 43 \\ 3 \overline{) 129} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the improper fraction $\frac{155}{100}$ as a decimal.

1.55

6. [Large Number -]

$$\begin{array}{r} 600 \\ - 47 \\ \hline 553 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 27.08 \\ 40.96 \\ + 6.75 \\ \hline 74.79 \end{array}$$

12. [Place Value]

Which number is smaller?
15.078 or 15.87

15.078

7. [Powers of 10 ×, ÷]

$$84500 \div 100 =$$

845

10. [Fractions]

Which of the following fractions **cannot** be simplified?

A $\frac{5}{12}$ B $\frac{3}{12}$ C $\frac{6}{12}$ D $\frac{7}{12}$

A and D

13. [Operations] *

$$5 \times 6 \div 3 =$$

10

14. [Exploring Numbers]

List the prime numbers between 20 and 30.

23, 29

15. [Number Patterns / Equations]

$$4 \times 6 = 24$$

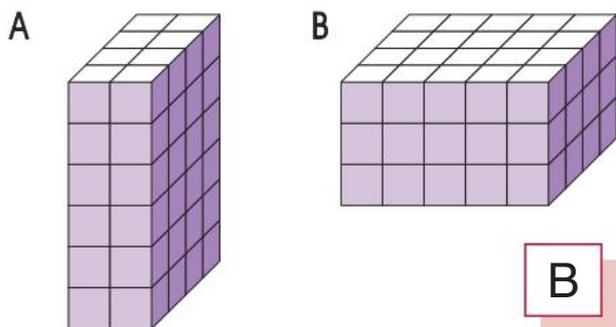
16. [Units of Measurement]

Convert to millilitres:

$$2.5 \text{ L} = \boxed{2500 \text{ mL}}$$

17. [Measuring]

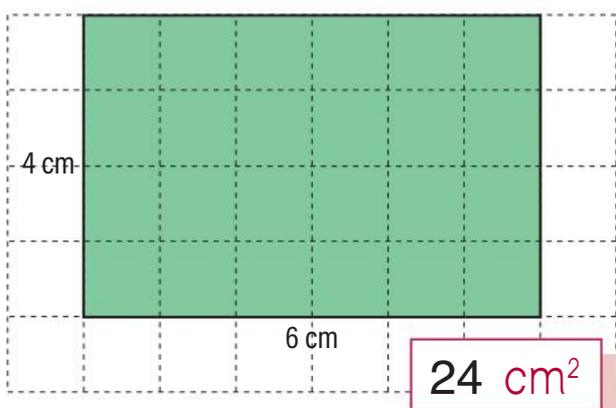
Which prism has the greater volume?



B

18. [Perimeter / Area]

Find the area of the shaded rectangle.



$$\boxed{24 \text{ cm}^2}$$

19. [Shapes]

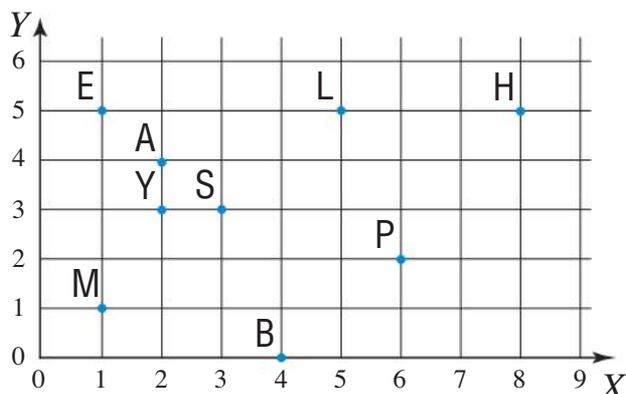
The bases of a square prism are squares. What are the lateral faces?

rectangles

20. [Location / Transformation]

Find the letter at each pair of coordinates to decode the message.

(4,0) (1,5) (8,5) (2,4) (6,2) (6,2) (2,3)



BE HAPPY

21. [Statistics / Probability]

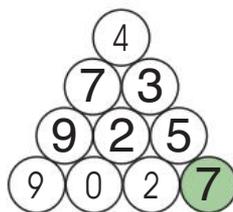
In a lotto draw, balls 1 to 50 are mixed together. A machine then randomly selects balls numbered 18, 12, 3, 7 and 6. Is the sixth number drawn:

- A more likely to be less than 20,
- B more likely to be more than 20, or
- C just as likely to be less than 20 as it is more than 20?

B

22. [Problem Solving 1]

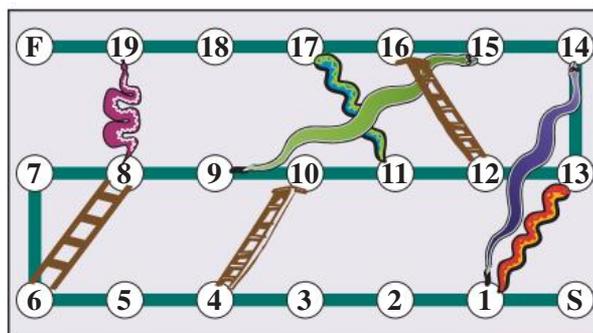
A single digit number belongs in each circle, and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



7

23. [Problem Solving 2]

If you could roll the same number every time, what number would you choose so that you could move from S to F in the least number of rolls?



2

24. [Problem Solving 3] *

Each letter represents a different digit from 0 to 9. If $E = 5$, what number does SPEED stand for?

$$\begin{array}{r} \text{S P E E D} \\ \text{S P E E D} \\ + \text{S P E E D} \\ \hline \text{K I L L S} \end{array}$$

$$\boxed{\text{SPEED} = 23554}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	25	20	13	29	8	21	16	12	7	14
+ 4	29	24	17	33	12	25	20	16	11	18

2. [- Whole Numbers to 10]

	13	8	16	21	10	14	9	32	15	7
- 6	7	2	10	15	4	8	3	26	9	1

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

DIVISIBILITY BY 2

A number is divisible by 2 if the last digit is an even number.

- e.g. $20 \div 2 = 10$
 $32 \div 2 = 16$
 $154 \div 2 = 77$
 $2386 \div 2 = 1193$
 $18 \div 2 = 9$

DIVISIBILITY BY 5

A number is divisible by 5 if the last digit is zero or five.

- e.g. $80 \div 5 = 16$
 $45 \div 5 = 9$

5. [Large Number +]

$$\begin{array}{r} 605 \\ + 145 \\ \hline 750 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 144 \\ \times 6 \\ \hline 864 \end{array}$$

12. [Place Value]

Place in order from smallest to largest:

96, 159, 196, 156, 116

96, 116, 156, 159, 196

6. [Large Number -]

$$\begin{array}{r} 56 \\ - 47 \\ \hline 9 \end{array}$$

9. [Decimals]

$$3 - 0.8 = 2.2$$

13. [Operations] *

$$7 + 2 \times 3 = 13$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 40 \\ \times 10 \\ \hline 400 \end{array}$$

10. [Fractions]

$$\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$$

14. [Exploring Numbers]

Complete the missing factor in the prime factorisation of 28:

$$28 = 2 \times 2 \times 7$$

11. [Decimals / Fractions / Percentages]

Write 0.13 as a percentage. 13%

15. [Number Patterns / Equations]

$$36 \div 4 = 9$$

16. [Units of Measurement]

Convert to seconds:

$$5 \text{ min} = \boxed{300 \text{ s}}$$

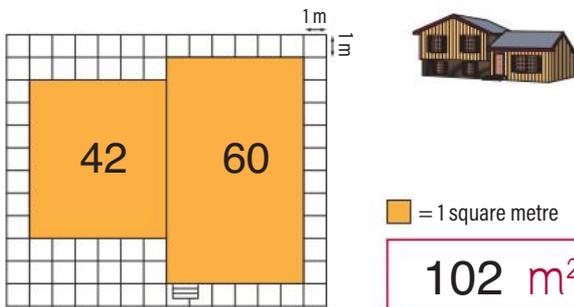
17. [Measuring]

The movie begins at 6:00 pm and lasts 115 minutes. When does the movie finish?

7 : 55 pm

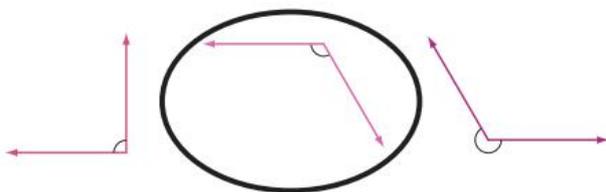
18. [Perimeter / Area] *

Use the grid and scale to find the total floor area of this house.



19. [Shapes]

Circle the obtuse angle.



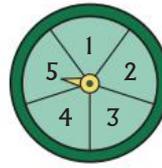
20. [Location / Transformation]

You are in Dublin. In which direction is Drogheda?



21. [Statistics / Probability]

What is the probability that this spinner will stop on a 5? [Give the answer as a fraction.]



$\frac{1}{5}$

22. [Problem Solving 1] *

The sum of two consecutive whole numbers is 97. What are the two numbers?

48 and 49

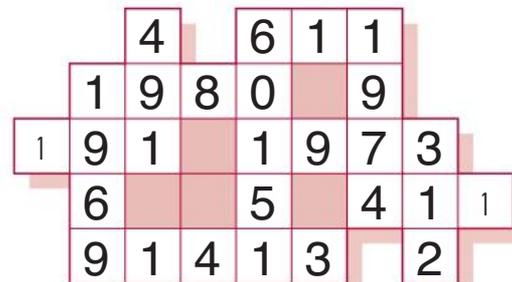
23. [Problem Solving 2]

Fill in the cross number puzzle using the following numbers:

3 digits: 191, 312, 411, 491, 611

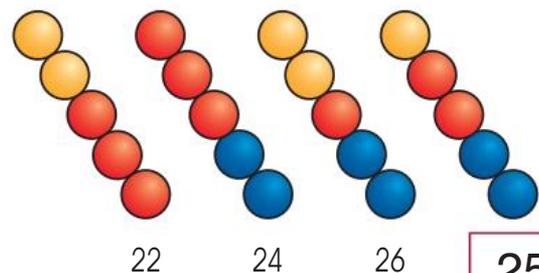
4 digits: 1969, 1973, 1974, 1980

5 digits: 91413, 60151



24. [Problem Solving 3] *

Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	13	18	22	17	11	6	10	4	25	19
+ 10	23	28	32	27	21	16	20	14	35	29

2. [- Whole Numbers to 10]

	20	8	9	6	7	15	14	22	13	31
- 5	15	3	4	1	2	10	9	17	8	26

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	21	18	24	3	27	30	12	15	6	9
÷ 3	7	6	8	1	9	10	4	5	2	3

DIVISIBILITY BY 4

A number is divisible by 4 if the last two digits are divisible by 4.

e.g. $216 \div 4 = 54$
 $1992 \div 4 = 498$
 $300 \div 4 = 75$
 $840 \div 4 = 210$

DIVISIBILITY BY 8

A number is divisible by 8 if the last three digits are divisible by 8.

e.g. $1480 \div 8 = 185$
 $23\,000 \div 8 = 2875$

5. [Large Number +]

$$\begin{array}{r} 3\,073 \\ + 2\,874 \\ \hline 5\,947 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 1\,57 \\ \times 8 \\ \hline 1\,256 \end{array}$$

12. [Place Value]

Place in order from largest to smallest:

7.7, 7.1, 1.7, 7.17, 7.01

7.7, 7.17, 7.1, 7.01, 1.7

6. [Large Number -]

$$\begin{array}{r} 8\,57 \\ - 3\,39 \\ \hline 5\,18 \end{array}$$

9. [Decimals]

$4 - 0.91 = 3.09$

13. [Operations] *

$18 - 4 \times 4 = 2$

2

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 8\,30 \\ \times 100 \\ \hline 8\,3000 \end{array}$$

10. [Fractions]

$\frac{3}{8} - \frac{2}{8} = \frac{1}{8}$

14. [Exploring Numbers]

Complete the missing factors in the prime factorisation of 60:

$60 = 2 \times 2 \times 3 \times 5$

11. [Decimals / Fractions / Percentages]

Write 0.8 as a percentage.

80%

15. [Number Patterns / Equations]

$56 \div 8 = 7$

16. [Units of Measurement]

Convert to minutes:

$$4 \text{ h} = \boxed{240 \text{ min}}$$

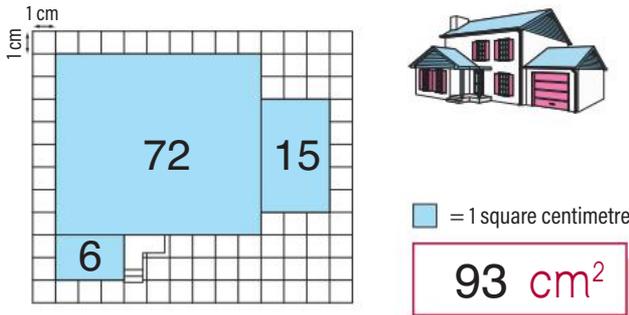
17. [Measuring]

The tennis final began at 11:30 pm and finished two hours and 20 minutes later. At what time did the tennis final finish?

1 : 50 am

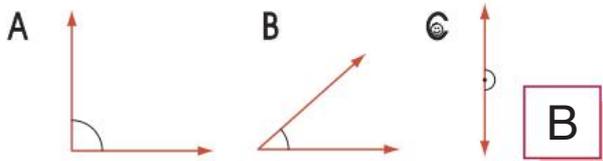
18. [Perimeter / Area] *

Use the grid and scale to find the total area of the doll's house plan.



19. [Shapes]

Which angle is an acute angle?



20. [Location / Transformation]

Travel west from the starting point. At the first intersection turn right. At the next intersection head east for 3 blocks and then turn south. To which square are you headed?



21. [Statistics / Probability]

A store has 50 boxes of cereal. There is a small toy in 23 of these boxes. What is the probability of choosing a box with a toy inside? [Give the answer as a fraction.]

$\frac{23}{50}$

22. [Problem Solving 1] *

Carl looked at the page numbers on the open book in front of him. The left and right page numbers added to 333. What were the page numbers?

166 and 167

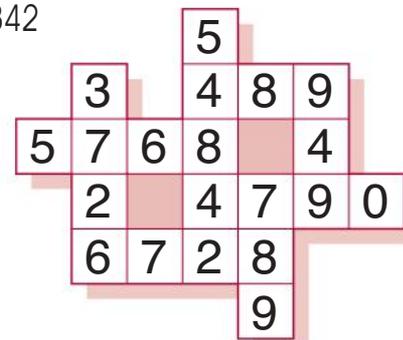
23. [Problem Solving 2]

Fill in the cross number puzzle using the following numbers:

3 digits: 489, 789, 949

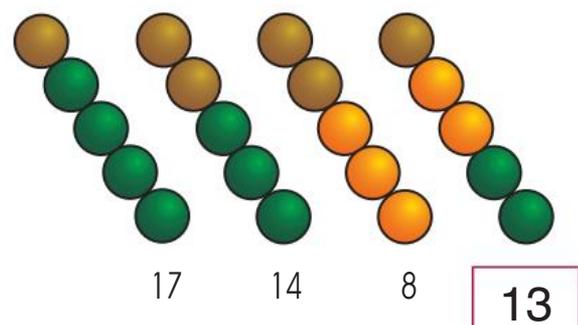
4 digits: 3726, 4790, 5768, 6728

5 digits: 54842



24. [Problem Solving 3] *

Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	11	9	23	17	15	18	22	26	14	10
+ 6	17	15	29	23	21	24	28	32	20	16

2. [- Whole Numbers to 10]

	14	25	12	23	11	9	18	10	36	17
- 8	6	17	4	15	3	1	10	2	28	9

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

DIVISIBILITY BY 3

♦ A number is divisible by 3 if the sum of its digits is divisible by 3.

Is 276 divisible by 3?
Yes, because $2 + 7 + 6$ is 15, which is divisible by 3.

DIVISIBILITY BY 6

♦ A number is divisible by 6 if it is even and the sum of its digits is divisible by 3.

DIVISIBILITY BY 9

♦ A number is divisible by 9 if the sum of its digits is divisible by 9.

5. [Large Number +]

$$\begin{array}{r} 142 \\ 560 \\ 123 \\ + 32 \\ \hline 857 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 72 \\ \times 31 \\ \hline 72 \\ 2160 \\ \hline 2232 \end{array}$$

12. [Place Value]

Place in descending order:
5.5, 5, 5.4, 4.54, 5.04

5.5, 5.4, 5.04, 5, 4.54

6. [Large Number -]

$$\begin{array}{r} 257 \\ - 179 \\ \hline 78 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 5.31 \\ - 0.87 \\ \hline 4.44 \end{array}$$

13. [Operations] *

$$15 \div 5 - 2 =$$

1

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 70 \\ \times 100 \\ \hline 7000 \end{array}$$

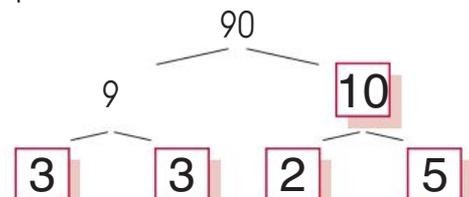
10. [Fractions]

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

$\frac{5}{7}$

14. [Exploring Numbers]

Complete the factor tree and write 90 as a product of its prime factors.



$$90 = 2 \times 3 \times 3 \times 5$$

11. [Decimals / Fractions / Percentages]

Write 75% as a decimal.

0.75

15. [Number Patterns / Equations]

$$72 \div 9 = 8$$

16. [Units of Measurement]

Convert to hours:

$$600 \text{ min} = \boxed{10 \text{ h}}$$

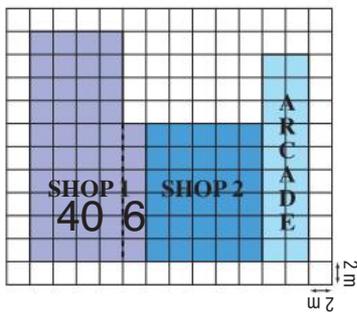
17. [Measuring]

Dave spent 2 hours and 15 minutes at the swimming pool and came back home at 5:30 pm. At what time did he go to the swimming pool?

$\boxed{3 : 15 \text{ pm}}$

18. [Perimeter / Area] *

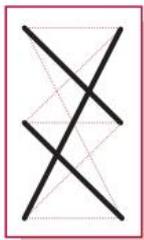
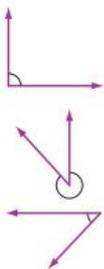
Use the grid and scale to find the total floor area of SHOP 1.



$\boxed{184 \text{ m}^2}$

19. [Shapes]

Match the angle to its description.



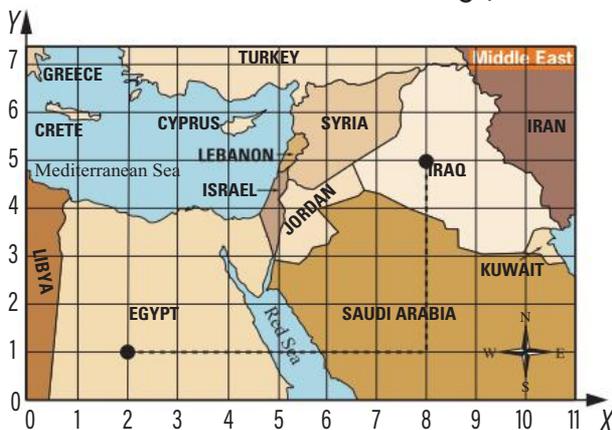
acute

right

reflex

20. [Location / Transformation]

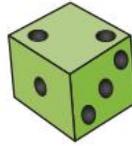
From coordinates (8,5) you fly four units south and six units west on the grid. Which country are you in and what are the coordinates of the landing point?



country: $\boxed{\text{Egypt}}$ $\boxed{(2, 1)}$

21. [Statistics / Probability]

What is the probability of rolling a number less than 3 with one roll of a die? [Give the answer as a fraction in simplest form.]



$\boxed{\frac{1}{3}}$

22. [Problem Solving 1] *

The sum of three consecutive whole numbers is 96. What are the three numbers?

$\boxed{31, 32 \text{ and } 33}$

23. [Problem Solving 2]

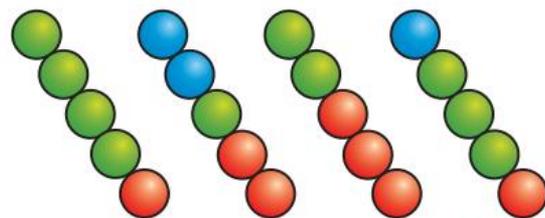
Fill in the cross number puzzle using the following numbers:

4 digits: 2353, 2680, 3350, 3875, 4810, 5044, 6000

2		5		2	3	5	3
6	0	0	0		3		8
8		4			5		7
0		4	8	1	0		5

24. [Problem Solving 3] *

Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?



22

21

16

$\boxed{23}$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	9	14	8	13	27	21	15	26	12	20
+ 3	12	17	11	16	30	24	18	29	15	23

2. [- Whole Numbers to 10]

	9	30	17	16	21	15	12	14	8	33
- 7	2	23	10	9	14	8	5	7	1	26

3. [× Whole Numbers to 10]

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

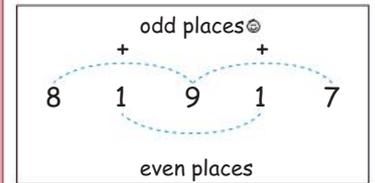
4. [÷ Whole Numbers to 10]

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

DIVISIBILITY BY 11

A number is divisible by 11 if the sum of the odd placed digits differs from the sum of the even placed digits by 0 or any multiple of 11.

e.g. 81917 is divisible by 11 because
 $8 + 9 + 7 = 24$,
 $1 + 1 = 2$ and
 $24 - 2 = 22$



5. [Large Number +]

$$\begin{array}{r} 1625 \\ 753 \\ + 1520 \\ \hline 3898 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 32 \\ \times 62 \\ \hline 64 \\ 1920 \\ \hline 1984 \end{array}$$

12. [Place Value]

Place in ascending order:
2.32, 3.23, 2.23, 2.33, 3.22

2.23, 2.32, 2.33, 3.22, 3.23

6. [Large Number -]

$$\begin{array}{r} 567 \\ - 458 \\ \hline 109 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 24.19 \\ - 13.85 \\ \hline 10.34 \end{array}$$

13. [Operations] *

$$6 + 12 \div 3 =$$

10

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 40 \\ \times 1000 \\ \hline 40000 \end{array}$$

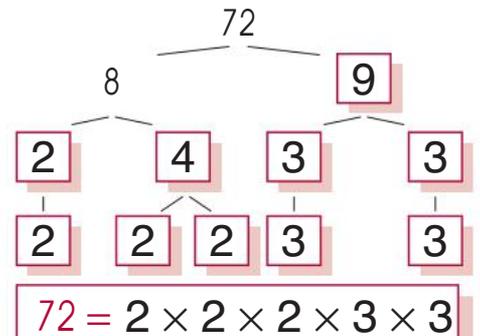
10. [Fractions]

$$\frac{11}{12} - \frac{4}{12} =$$

$\frac{7}{12}$

14. [Exploring Numbers]

Complete the factor tree and write 72 as a product of its prime factors.



11. [Decimals / Fractions / Percentages]

Write 90% as a decimal.

0.9

15. [Number Patterns / Equations]

$$48 \div 12 = 4$$

16. [Units of Measurement]

Convert to hours:

$$2\frac{1}{2} \text{ days} = \boxed{60 \text{ h}}$$

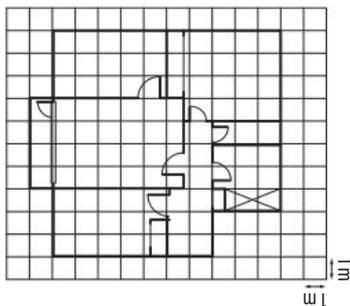
17. [Measuring]

Sophie fell asleep at 10:00 pm. Her alarm clock woke her eight and a half hours later. At what time did the alarm clock ring?

6 : 30 am

18. [Perimeter / Area] *

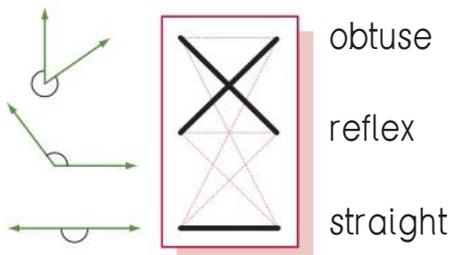
Use the grid and scale to find the total area of this apartment plan.



98 m²

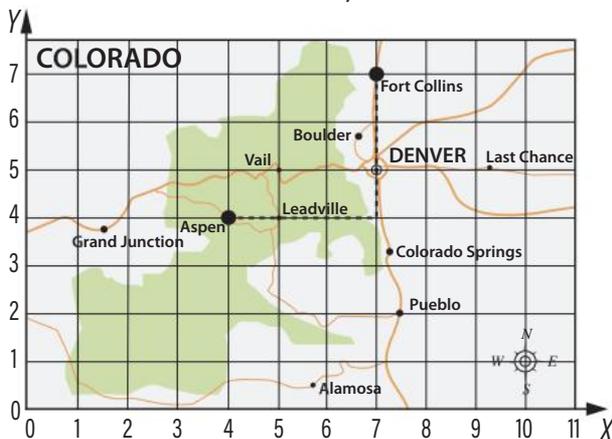
19. [Shapes]

Match the angle to its description.



20. [Location / Transformation]

From Aspen you move three units east and three units north on the grid. Which city are you in and what are the coordinates of this city?



city: Fort Collins (7 , 7)

21. [Statistics / Probability]

What is the probability that this spinner will stop on an odd number?
[Give the answer as a fraction.]



$\frac{5}{8}$

22. [Problem Solving 1] *

The sum of four consecutive whole numbers is 94. What are the four numbers?

22, 23, 24 and 25

23. [Problem Solving 2]

Fill in the cross number puzzle using the following numbers:

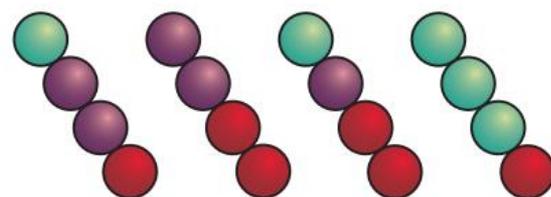
3 digits: 111, 146, 399, 419, 600, 707, 717, 727, 747, 819

4 digits: 1958, 1969, 6100

1	9	5	8		7	0	7
			1	1	1		2
1	9	6	9		7	4	7
4		0				1	
6	1	0	0		3	9	9

24. [Problem Solving 3] *

Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?



16

18

21

22





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	9	21	15	10	14	22	17	23	6	18
+ 3	12	24	18	13	17	25	20	26	9	21

2. [- Whole Numbers to 10]

	30	19	18	26	12	13	21	15	17	24
- 9	21	10	9	17	3	4	12	6	8	15

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

ARCHIMEDES

(287 - 212 B.C.)

Archimedes was born on the island of Sicily. Besides being one of history's greatest mathematicians, he was also an inventor. Engineers today, when designing bridges and skyscrapers, still use the laws he discovered. He also came up with a very good approximation of the value of π .

$$\pi \approx 3.141592.....$$

5. [Large Number +]

$$\begin{array}{r} 62 \\ 45 \\ + 24 \\ \hline 131 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 57 \\ 5 \overline{) 285} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.75	$\frac{75}{100}$ OR $\frac{3}{4}$	75%

6. [Large Number -]

$$\begin{array}{r} 264 \\ - 67 \\ \hline 197 \end{array}$$

9. [Decimals]

10% GST must be added to a \$22 ball. What is the price of the ball after adding \$2.20 GST?

$$\boxed{\$24.20}$$

12. [Place Value]

Round 2516 to the nearest hundred.

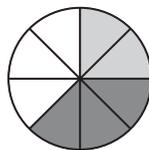
$$\boxed{2500}$$

7. [Powers of 10 ×, ÷]

$$6000 \div 1000 = \boxed{6}$$

10. [Fractions]

Shade the diagram to add the fractions.



$$\frac{1}{4} + \frac{3}{8} = \boxed{\frac{5}{8}}$$

13. [Operations] *

$$9 - 7 + 4 + 5 =$$

$$\boxed{11}$$

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 5 and 6 are factors of 1996?

$$\boxed{2, 4}$$

15. [Number Patterns / Equations]

$$4, 5, 7, 10, 14, \boxed{19, 25}$$

16. [Units of Measurement] *

Which is greater?

70 cm or 8000 mm

8000 mm

17. [Measuring]

How much longer is the trip from Manukau Bus Station to the Auckland Airport International Terminal on a weekday than on Saturday?

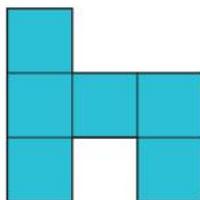
Timetable	Mon to Fri	Sat
	Bus	
Manukau Bus Station	07:00	07:05
Papatoetoe Interchange	07:12	07:13
Domestic Terminal	07:30	07:29
International Terminal	07:33	07:31

7 min

18. [Perimeter / Area]

The shapes below have the same:

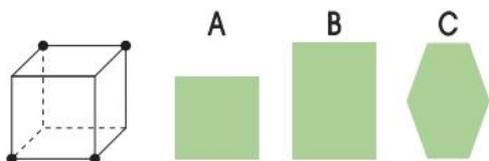
- A perimeter and area
- B perimeter
- C area



A

19. [Shapes]

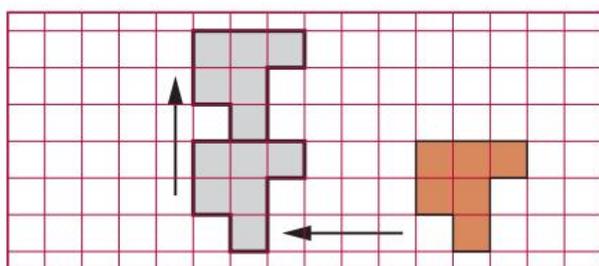
Which shape shows the cross section produced by slicing through the points indicated on the cube?



B

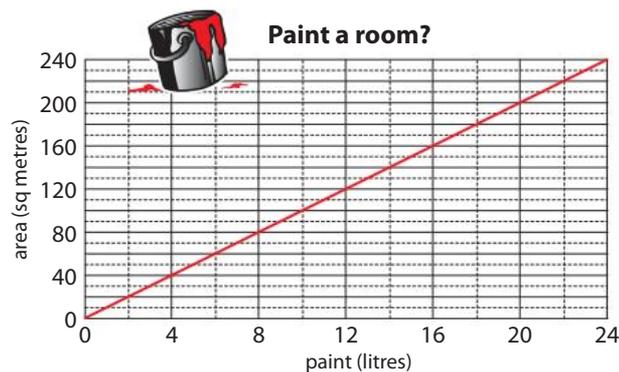
20. [Location / Transformation]

Redraw this shape after translating it 6 units to the left and then 3 units up.



21. [Statistics / Probability]

How much paint would you need to cover 140 square metres of wall area?



14 L

22. [Problem Solving 1]

Fill in the missing digits in the subtraction.

$$\begin{array}{r} \boxed{9} \ 8 \\ - \ 2 \ \boxed{6} \\ \hline 7 \ 2 \end{array}$$

23. [Problem Solving 2] *

I think of a number, divide it by 2 and then add 12. If the result is 20, what was the original number?

16

24. [Problem Solving 3] *

The table shows the Group B team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Wales play in its third round robin match? [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 match.]

GROUP B TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	
England	2	1	1	0	6	2	4
Iran	2	1	0	1	4	6	3
USA	2	0	2	0	1	1	2
Wales	2	0	1	1	1	3	1

Wales vs England





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	18	21	27	6	13	20	12	14	25	19
+ 4	22	25	31	10	17	24	16	18	29	23

2. [- Whole Numbers to 10]

	7	12	8	9	26	15	10	14	31	13
- 6	1	6	2	3	20	9	4	8	25	7

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	20	10	45	40	25	30	15	50	35	5
÷ 5	4	2	9	8	5	6	3	10	7	1

ERATOSTHENES

(around 3rd century B.C.)

Almost 2000 years before most people agreed the Earth was round, this Greek mathematician has calculated the circumference of the Earth to be 38000 km. He found this by observing and measuring shadows cast by pillars on different parts of the Earth's surface.

The circumference of the Earth, measured through the two poles, is actually 40000 km.

5. [Large Number +]

$$\begin{array}{r} 4468 \\ + 1705 \\ \hline 6173 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 77 \\ 3 \overline{) 231} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.83	$\frac{83}{100}$	83%

6. [Large Number -]

$$\begin{array}{r} 243 \\ - 149 \\ \hline 94 \end{array}$$

9. [Decimals]

10% GST must be added to a \$15 book. What is the price of the book after adding \$1.50 GST?

$$\boxed{\$16.50}$$

12. [Place Value]

Round 4.07 to the nearest whole number.

$\boxed{4}$

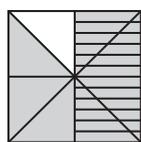
7. [Powers of 10 ×, ÷]

$$7000 \div 1000 =$$

$\boxed{7}$

10. [Fractions]

Shade the diagram to subtract the fractions.



$$\frac{7}{8} - \frac{1}{2} = \frac{3}{8}$$

13. [Operations] *

$$6 - 4 + 7 - 3 =$$

$\boxed{6}$

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 5 and 10 are factors of 7230?

$\boxed{2, 3, 5, 10}$

15. [Number Patterns / Equations]

2, 10, 17, 23, 28, $\boxed{32, 35}$

16. [Units of Measurement] *

Which is greater?

3 t or 4000 kg

4000 kg

17. [Measuring]

What was the actual time of arrival at 42nd St if the 10:39 am train from 125th St was running 3 minutes late? Answer using the 12-hour time format.

MTA A New York City Transit			
145th St	125th St	59th St	42nd St
<i>Mon to Fri</i>			
10:21 am	10:24 am	10:32 am	10:35 am
10:28 am	10:32 am	10:40 am	10:43 am
10:36 am	10:39 am	10:47 am	10:51 am
10:41 am	10:45 am	10:53 pm	10:57 pm
10:51 am	10:54 pm	11:02 pm	11:05 pm

10 : 54 am

18. [Perimeter / Area]

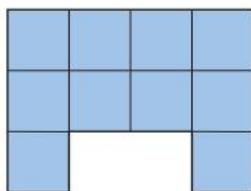
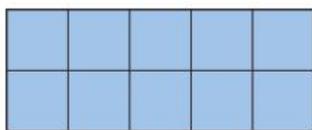
The shapes below have the same:

A perimeter and area

B perimeter

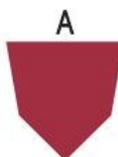
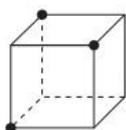
C area

C



19. [Shapes]

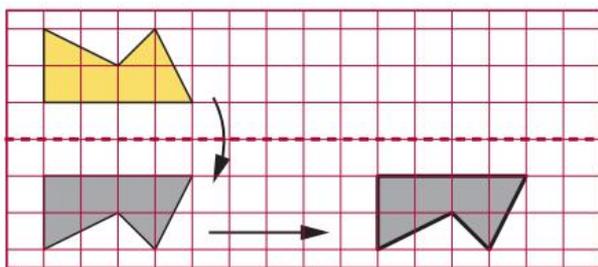
Which shape shows the cross section produced by slicing through the points indicated on the cube?



C

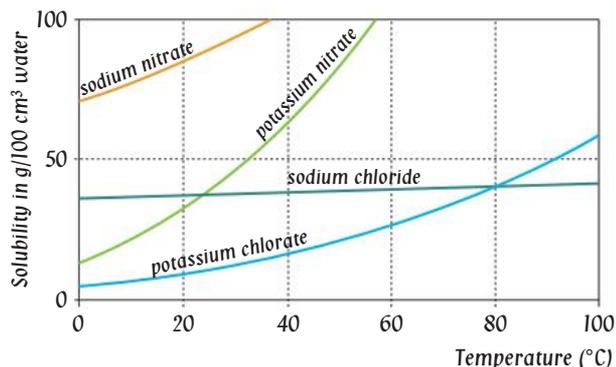
20. [Location / Transformation]

Redraw this shape after reflecting it in the dotted line and then translating it 9 units to the right.



21. [Statistics / Probability]

At what temperature is the solubility of sodium chloride and potassium chlorate the same?



80 °C

22. [Problem Solving 1]

Fill in the missing digits in the sum.

$$\begin{array}{r} 16 \\ 29 \\ + 51 \\ \hline 96 \end{array}$$

23. [Problem Solving 2] *

I think of a number, add 15 and then divide by 4. If the result is 5, what was the original number?

5

24. [Problem Solving 3] *

The table shows the Group F team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Canada play in its third round robin match? [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 match.]

GROUP F TEAMS	MP Played	W Wins	D Draws	L Losses	GF Goals For	GA Goals Against	Pts Points
Croatia	2	1	1	0	4	1	4
Morocco	2	1	1	0	2	0	4
Belgium	2	1	0	1	1	2	3
Canada	2	0	0	2	1	5	0

Canada vs Morocco





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	11	12	23	15	8	20	9	14	17	26
+ 5	16	17	28	20	13	25	14	19	22	31

2. [- Whole Numbers to 10]

	17	8	15	16	23	34	12	10	9	11
- 7	10	1	8	9	16	27	5	3	2	4

3. [× Whole Numbers to 10]

	5	7	1	6	2	3	10	9	4	8
× 3	15	21	3	18	6	9	30	27	12	24

4. [÷ Whole Numbers to 10]

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

SAMUEL F B MORSE

(1791 - 1872)

In 1844 Samuel Morse won a competition by transmitting the message, "What hath God wrought" using a single wire from Washington to Baltimore. Earlier plans to use a system of 26 wires (one per letter) were abandoned because of cost.

The use of Morse Code was discontinued worldwide in the year 2000.

5. [Large Number +]

$$\begin{array}{r} 923 \\ 3046 \\ + 1908 \\ \hline 5877 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 74 \\ 8 \overline{) 592} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.7	$\frac{7}{10}$	70%

6. [Large Number -]

$$\begin{array}{r} 633 \\ - 238 \\ \hline 395 \end{array}$$

9. [Decimals]

The price of a tent is \$135.90 including GST. If the price before GST is \$123.55, what is the GST?

$$\boxed{\$ 12.35}$$

12. [Place Value]

Round 4.56 to the nearest tenth.

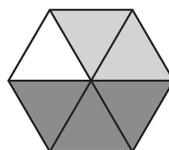
$$\boxed{4.6}$$

7. [Powers of 10 ×, ÷]

$$44000 \div 1000 = \boxed{44}$$

10. [Fractions]

Shade the diagram to add the fractions.



$$\frac{2}{6} + \frac{1}{2} = \boxed{\frac{5}{6}}$$

13. [Operations] *

$$(7 + 2) \times 3 =$$

$$\boxed{27}$$

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 6 and 9 are factors of 1881?

$$\boxed{3, 9}$$

15. [Number Patterns / Equations]

$$30, 29, 27, 24, 20, \boxed{15}, \boxed{9}$$

16. [Units of Measurement] *

Which is greater?

5000 mL or 40 L

40 L

17. [Measuring]

Puffing Billy is departing Belgrave station at 11:10 am. How long does it take to arrive at Lakeside station?

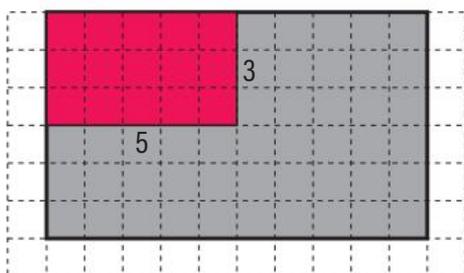
58 min

FROM BELGRAVE

Belgrave dep:	10.30	11.10	12.15	1.15	2.30
Menzies Crk arr:	10.53	11.33	12.47	1.47	2.53
Menzies Crk dep:	11.05	11.38	1.05	1.55	3.00
Emerald dep:	11.20	11.53	1.15	2.10	3.20
Lakeside arr:	11.30	12.08	1.30	2.20	3.30
Lakeside dep:	...	12.20	...	...	...
Cockatoo dep:	...	12.35	...	...	...
Gembrook arr:	...	1.00	...	...	...

18. [Perimeter / Area]

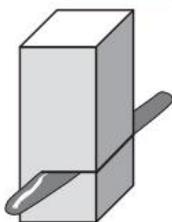
Double the length and the width of this rectangle. How many times bigger is the area of the new rectangle compared to the original rectangle?



4

19. [Shapes]

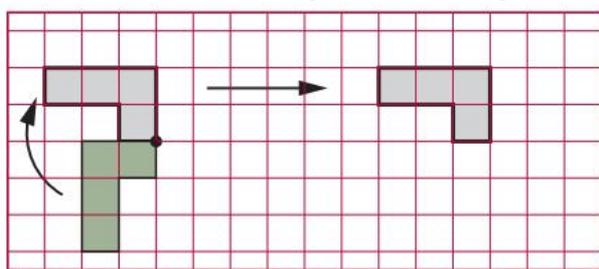
Name the shape of the cross-section obtained when cutting through this square prism, parallel to the base.



square

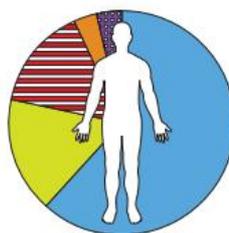
20. [Location / Transformation]

Redraw this shape after turning it 90° clockwise around the marked point and then translating it 9 units right.



21. [Statistics / Probability]

Protein makes up about 15% of the human body. Of the other components which substance makes up about 15%?



- Water
- Protein
- Fat
- Nitrogen
- Other

Composition of the Human Body

fat

22. [Problem Solving 1]

Fill in the missing digits in the subtraction.

$$\begin{array}{r} \boxed{7} \ 9 \\ - \ 5 \ \boxed{6} \\ \hline 2 \ 3 \end{array}$$

23. [Problem Solving 2] *

I think of a number, multiply it by 3 and then divide by 2. If the result is 18, what was the original number?

12

24. [Problem Solving 3] *

The table shows the Group G team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Cameroon play in its third round robin match? [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 match.]

GROUP G TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Brazil	2	2	0	0	3	0	6
Switzerland	2	1	0	1	1	1	3
Cameroon	2	0	1	1	3	4	1
Serbia	2	0	1	1	3	5	1

Cameroon vs Brazil



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	8	1	26	10	13	29	12	24	5	17
+ 7	15	8	33	17	20	36	19	31	12	24

2. [- Whole Numbers to 10]

	31	8	9	13	10	15	24	7	16	12
- 5	26	3	4	8	5	10	19	2	11	7

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	18	30	12	3	9	15	21	6	24	27
÷ 3	6	10	4	1	3	5	7	2	8	9

FIBONACCI

(1170 - 1230)

The number sequence 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, was made famous by Fibonacci. Except for the 0 and 1, each number in the sequence is the sum of the two numbers that come before it.

The Fibonacci numbers occur often in nature, e.g. they show growth rates in rabbit populations.

5. [Large Number +]

$$\begin{array}{r} 1532 \\ 7036 \\ + 1375 \\ \hline \end{array}$$

9943

8. [Large Number ×, ÷]

46

$$7 \overline{) 322}$$

9. [Decimals]

The price of a pair of shoes is \$230 including GST. If the price before GST is \$209.09, what is the GST?

\$ 20.91

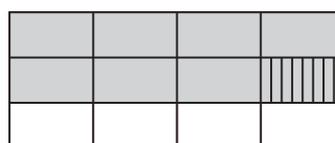
6. [Large Number -]

$$\begin{array}{r} 586 \\ - 387 \\ \hline \end{array}$$

199

10. [Fractions]

Shade the diagram to subtract the fractions.



$$\frac{2}{3} - \frac{1}{12} = \frac{7}{12}$$

7. [Powers of 10 ×, ÷]

$$82000 \div 1000 =$$

82

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.25	$\frac{25}{100}$ OR $\frac{1}{4}$	25%

12. [Place Value]

Round 3.872 to the nearest hundredth.

3.87

13. [Operations] *

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

15

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 5, 6 and 10 are factors of 1900?

2, 4, 5, 10

15. [Number Patterns / Equations]

45, 43, 39, 33,

25, 15

16. [Units of Measurement] *

Which is greater?

600 g or 5 kg

5 kg

17. [Measuring]

What is the difference between the starting times of the low tides on Sunday morning and on Saturday morning? [Disregard the 24 h difference.]

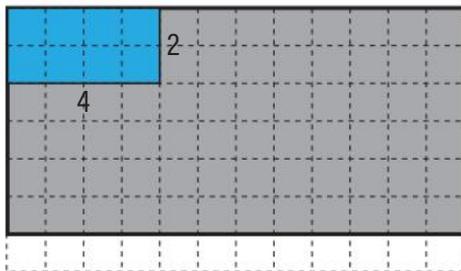
27 min

Gold Coast (QLD) Tides

SAT Nov 2 2024		SUN Nov 3 2024	
Low	1:50 am 0.11 m	Low	2:17 am 0.14 m
High	8:34 am 1.54 m	High	9:07 am 1.56 m
Low	2:49 pm 0.24 m	Low	3:28 pm 0.26 m
High	8:32 pm 1.16 m	High	9:07 pm 1.09 m

18. [Perimeter / Area]

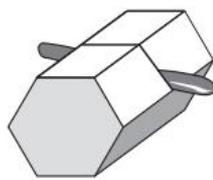
Triple the length and the width of this rectangle. How many times bigger is the area of the new rectangle compared to the original rectangle?



9

19. [Shapes]

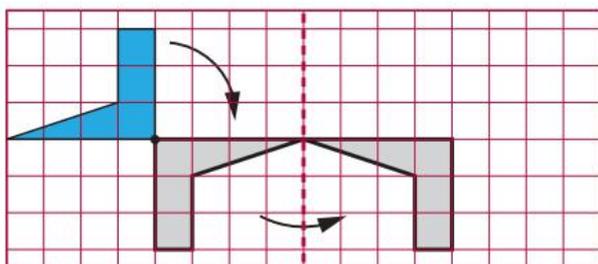
Name the shape of the cross-section obtained when cutting through this prism, parallel to the base.



hexagon

20. [Location / Transformation]

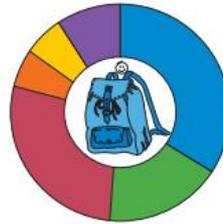
Redraw this shape after turning it 180° around the marked point and then reflecting it in the dotted line.



21. [Statistics / Probability]

What reason accounts for a quarter of students learning a foreign language in Britain?

Reasons for Learning a Foreign Language in Britain



- Travel
- Buying property overseas
- Business
- Personal development
- Social contact
- Other

business

22. [Problem Solving 1]

Fill in the missing digits in the sum.

$$\begin{array}{r}
 17 \\
 \boxed{4} \boxed{2} \\
 + 36 \\
 \hline
 95
 \end{array}$$

23. [Problem Solving 2] *

I think of a number, multiply it by 4 and then divide by 3. If the result is 12, what was the original number?

9

24. [Problem Solving 3] *

The table shows the Group E team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Japan play in its third round robin match? [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 match.]

GROUP E TEAMS	MP Played	W Wins	D Draws	L Losses	GF Goals For	GA Goals Against	Pts
Spain	2	1	1	0	8	1	4
Japan	2	1	0	1	2	2	3
Costa Rica	2	1	0	1	1	7	3
Germany	2	0	1	1	2	3	1

Japan vs Spain





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	24	9	33	11	30	7	18	12	6	25
+ 6	30	15	39	17	36	13	24	18	12	31

2. [- Whole Numbers to 10]

	12	9	18	17	10	34	13	41	26	55
- 7	5	2	11	10	3	27	6	34	19	48

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	40	15	25	10	45	50	5	30	35	20
÷ 5	8	3	5	2	9	10	1	6	7	4

5. [Large Number +]

$$\begin{array}{r} 78 \\ + 935 \\ \hline 1013 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 39 \\ \times 63 \\ \hline 117 \\ 2340 \\ \hline 2457 \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 20% of \$100.

\$ 20

6. [Large Number -]

$$\begin{array}{r} 770 \\ - 89 \\ \hline 681 \end{array}$$

9. [Decimals]

$3.4 \times 10 =$

34

12. [Place Value] *

Estimate the difference between 109 and 71 by rounding to the nearest ten before subtracting.

40

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 360 \\ \times 10 \\ \hline 3600 \end{array}$$

10. [Fractions]

Of the 18 plants in the garden, one third are roses. How many are roses?

$\frac{1}{3}$ of 18 =

6

13. [Operations] *

$9 \div (3 \div 3) =$

9

14. [Exploring Numbers]

Which temperature is lower?

A 21°C below zero

B 18°C below zero

A

15. [Number Patterns / Equations]

6.2, 5.9, 5.6, 5.3,

5, 4.7

MULTIPLICATION

(Check Your Answer)

e.g. Could this answer be correct?

$48 \times 362 = 17\,376$

Check:

$(4+8) \times (3+6+2) = 1+7+3+7+6$

$12 \times 11 = 24$

$(1+2) \times (1+1) = 2+4$

$3 \times 2 = 6$

Yes, the answer is probably correct.

Could these be correct?

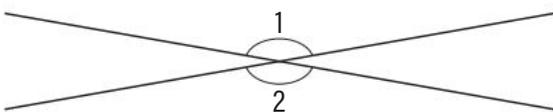
a) $46 \times 129 = 5934$

b) $199 \times 1997 = 97\,403$

Answers: a) may be correct b) definitely wrong

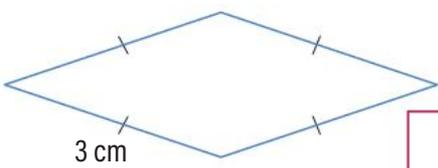
16. [Units of Measurement] *
Circle the longest distance.
3000 cm 3 m **3 km**

17. [Measuring]
Measure the marked angles below:



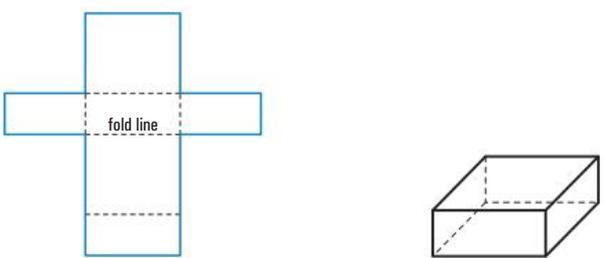
Angle 1 = **140°** Angle 2 = **140°**
These angles are: **equal**

18. [Perimeter / Area]
Find the perimeter of the rhombus.



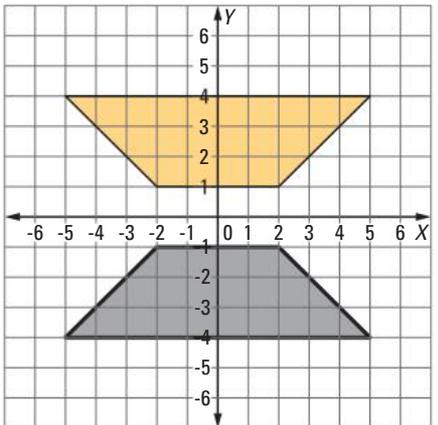
12 cm

19. [Shapes]
What 3-dimensional shape can this net be used to make?

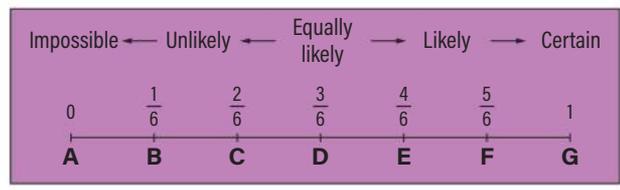


rectangular prism

20. [Location / Transformation]
Redraw this trapezium after reflecting it in the X-axis.



21. [Statistics / Probability]
On the probability scale below, which letter A to G best represents the probability of this event?
"A number greater than 5 turns up when a die is rolled."



B

22. [Problem Solving 1]
Fill in the missing number.
 $12 \times \mathbf{3} + 6 = 42$

23. [Problem Solving 2]
Fill in the magic square. [Hint: Every row, column and diagonal has the same sum.]

4	11	3
5	6	7
9	1	8

24. [Problem Solving 3]
Fill in the answers about time correctly, and you will find the name of a long interval of time in the vertical shaded box.

Hangs on a wall **C** k
7 days w **E** e k
3600 every hour s e c o **N** d s
On your wrist w a **T** c h
60 seconds m i n **U** t e
60 minutes h o u **R**
1440 minutes d a **Y**

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Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	14	32	19	10	15	28	7	13	31	16
+ 4	18	36	23	14	19	32	11	17	35	20

2. [- Whole Numbers to 10]

	11	26	8	5	12	33	14	9	40	7
- 3	8	23	5	2	9	30	11	6	37	4

3. [× Whole Numbers to 10]

	9	7	8	6	5	3	4	1	2	10
× 5	45	35	40	30	25	15	20	5	10	50

4. [÷ Whole Numbers to 10]

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

5. [Large Number +]

$$\begin{array}{r} 1679 \\ + 840 \\ \hline 2519 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 83 \\ \times 72 \\ \hline 166 \\ 5810 \\ \hline 5976 \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 10% of \$80.

\$ 8

6. [Large Number -]

$$\begin{array}{r} 924 \\ - 49 \\ \hline 875 \end{array}$$

9. [Decimals]

1.12 × 10 =

11.2

12. [Place Value] *

Estimate the product of 48 and 53 by rounding to the nearest ten before multiplying.

2500

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 900 \\ \times 100 \\ \hline 90000 \end{array}$$

10. [Fractions]

Of the 36 books on the shelf, one ninth are fiction. How many books are fiction?

$\frac{1}{9}$ of 36 =

4

13. [Operations] *

30 ÷ (5 × 2) =

3

14. [Exploring Numbers]

Which scuba diver is closest to the surface?

- A 25 m below sea level
- B 12 m below sea level

B

15. [Number Patterns / Equations]

4, 5.1, 6.2, 7.3, 8.4,

9.5, 10.6

MULTIPLICATION

(Check Your Answer)

e.g. Could this answer be correct?

46 × 92 × 39 = 165048

Check: 9 's can be thrown out

(4+6) × 2 × 3 = 1+6+5+0+4+8

10 × 2 × 3 = 24

1 × 2 × 3 = 2+4

2 × 3 = 6

Yes, the answer is probably correct.

Could these be correct?

a) 21 × 85 × 37 = 69045

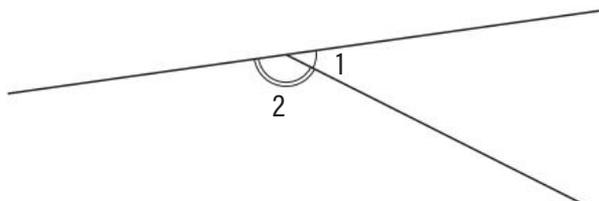
b) 220 × 209 = 45980

Answers: (a) definitely wrong (b) may be correct

16. [Units of Measurement] *
Circle the greatest mass.

10 t 40 000 g 6000 kg

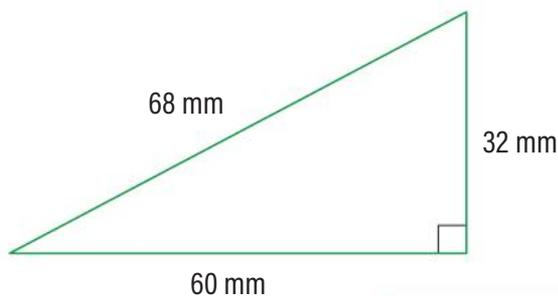
17. [Measuring]
Measure the marked angles below:



Angle 1 = **35°** Angle 2 = **145°**

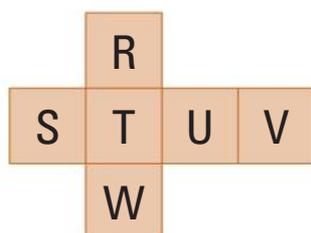
The sum of these angles is: **180°**

18. [Perimeter / Area]
Find the perimeter of the triangle.



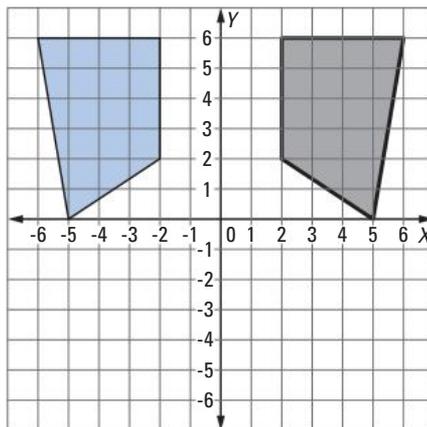
160 mm

19. [Shapes]
This net forms a cube when folded.
Which letter is on the face opposite to letter V?

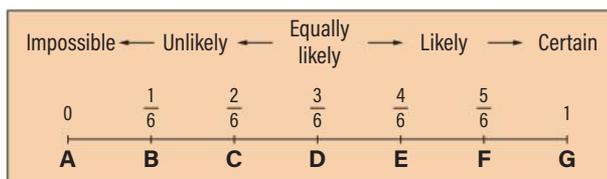


T

20. [Location / Transformation]
Redraw this quadrilateral after reflecting it in the Y-axis.



21. [Statistics / Probability]
On the probability scale below, which letter A to G best represents the probability of this event?
"A number less than 7 turns up when a die is rolled."



G

22. [Problem Solving 1]
Fill in the missing number.
45 $\div 5 - 3 = 6$

23. [Problem Solving 2]
Fill in the magic square. [Hint: Every row, column and diagonal has the same sum.]

9	5	4
1	6	11
8	7	3

24. [Problem Solving 3] *
When you multiply the ages of Rob and Bec the result is 288. If at least one of them is a teenager, what is the sum of their ages?
[Hint: List the factors of 288.]

34



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	33	20	29	8	31	24	12	35	17	6
+ 10	43	30	39	18	41	34	22	45	27	16

2. [- Whole Numbers to 10]

	14	22	30	15	16	17	38	13	21	19
- 8	6	14	22	7	8	9	30	5	13	11

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MULTIPLICATION

(Check Your Answer)

e.g. Could this answer be correct?

$$31 \times 104.8 = 3248.8$$

Check:

$$(3+1) \times (1+4+8) = 3+2+4+8+8$$

$$4 \times (1+3) = 2+5$$

$$4 \times 4 = 7$$

$$1+6 = 7$$

Yes, the answer is probably correct.

Could these be correct?

a) $12.2 \times 16.5 = 201.3$

b) $4.05 \times 19.7 = 79.785$

Answers: a) may be correct b) may be correct

5. [Large Number +]

$$\begin{array}{r} 4212 \\ 1045 \\ + 2835 \\ \hline 8092 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 58 \\ \times 73 \\ \hline 174 \\ 4060 \\ \hline 4234 \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 50% of \$30.

\$ 15

6. [Large Number -]

$$\begin{array}{r} 4080 \\ - 507 \\ \hline 3573 \end{array}$$

9. [Decimals]

$5.75 \times 100 =$

575

13. [Operations] *

$12 \div (2 \times 6) =$

1

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 80 \\ \times 1000 \\ \hline 80000 \end{array}$$

10. [Fractions] *

Three quarters of the 20 farms breed cattle. How many farms breed cattle?

$\frac{3}{4}$ of 20 =

15

14. [Exploring Numbers]

Write as a positive or negative number:

nine floors above ground level.

+9

15. [Number Patterns / Equations]

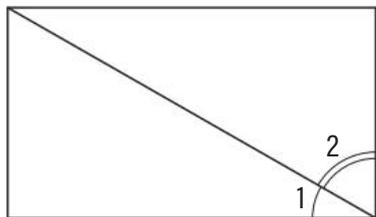
$\frac{40}{11}, \frac{37}{11}, \frac{34}{11}, \frac{31}{11}, \frac{28}{11}, \frac{25}{11}$

**28 25
11 , 11**

16. [Units of Measurement] *
Circle the smallest capacity.

8000 mL 7 L **900 mL**

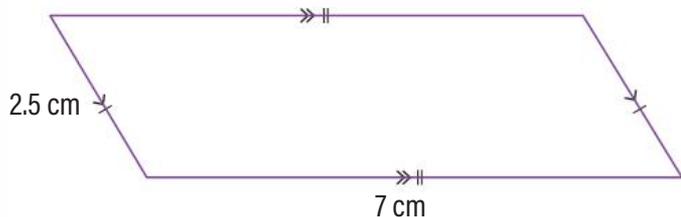
17. [Measuring]
Measure the marked angles below:



Angle 1 = **30°** Angle 2 = **60°**

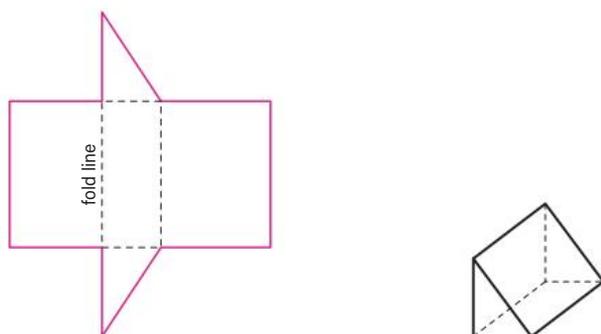
The sum of these angles is: **90°**

18. [Perimeter / Area]
Find the perimeter of the parallelogram.



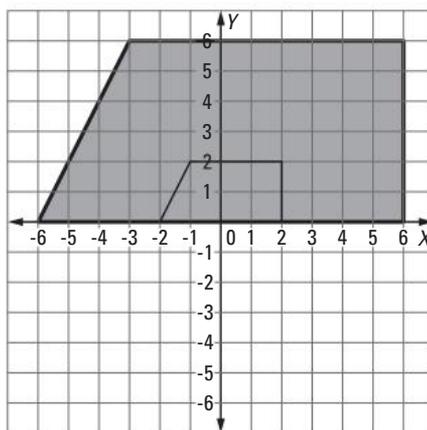
19 cm

19. [Shapes]
What 3-dimensional shape can this net be used to make?



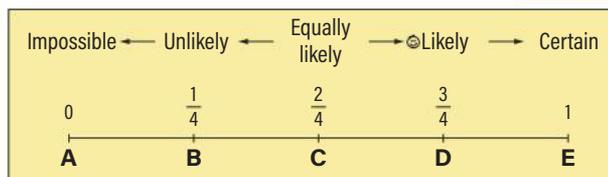
triangular prism

20. [Location / Transformation]
Redraw this trapezium after multiplying its coordinates by 3 (enlargement of factor 3).



21. [Statistics / Probability]
On the probability scale below, which letter A to E best represents the probability of this event?
"An even number is drawn at random from the numbers 10 to 19."

C



22. [Problem Solving 1]
Fill in the missing number.

$8 \times \mathbf{7} + 4 = 60$

23. [Problem Solving 2]
Fill in the magic square.
[Hint: Every row, column and diagonal has the same sum.]

12	4	11
8	9	10
7	14	6

24. [Problem Solving 3] *
A bookshop sold 200 books over the internet in its first year of business. Since then the number of books sold has doubled every year. What was the bookshop's profit in the sixth year given the yearly profit formula below?

Yearly profit = books sold \times \$2 - \$1000

\$ 11 800





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	12	39	24	17	36	20	31	13	8	25
+ 2	14	41	26	19	38	22	33	15	10	27

2. [- Whole Numbers to 10]

	10	35	24	6	27	9	13	32	31	28
- 4	6	31	20	2	23	5	9	28	27	24

3. [× Whole Numbers to 10]

	9	10	4	5	2	3	7	6	8	1
× 10	90	100	40	50	20	30	70	60	80	10

4. [÷ Whole Numbers to 10]

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

5. [Large Number +]

$$\begin{array}{r} 410 \\ 277 \\ 306 \\ + 526 \\ \hline 1519 \end{array}$$

6. [Large Number -]

$$\begin{array}{r} 7305 \\ - 428 \\ \hline 6877 \end{array}$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 570 \\ \times 1000 \\ \hline 570000 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 64 \\ \times 59 \\ \hline 576 \\ 3200 \\ \hline 3776 \end{array}$$

9. [Decimals]

$$9.6 \times 100 = 960$$

10. [Fractions] *

Three fifths of the \$500 raised by the school charity event was collected by grade 6 students. How much money is this?

$$\frac{3}{5} \text{ of } \$500 = \$300$$

11. [Decimals / Fractions / Percentages]

Calculate 25% of \$40.

$$\$10$$

12. [Place Value] *

Estimate the difference between 9.25 and 6.5 by rounding to the nearest whole number before subtracting.

$$2$$

13. [Operations] *

$$(9 - 2) \times 5 =$$

$$35$$

14. [Exploring Numbers]

Write as a positive or negative number:
a debt of \$100.

$$-100$$

15. [Number Patterns / Equations]

$$1, 1\frac{1}{7}, 1\frac{2}{7}, 1\frac{3}{7}, 1\frac{4}{7}, 1\frac{5}{7}$$

DIVISION

(Check Your Answer)

e.g. Could this answer be correct?

$$45980 \div 209 = 220$$

Check: \swarrow \searrow 9's can be thrown out

$$(4+5+8) \div 2 = 2+2$$

$$(1+7) \div 2 = 4$$

$$8 \div 2 = 4$$

Yes, the answer is probably correct.

Could these be correct?

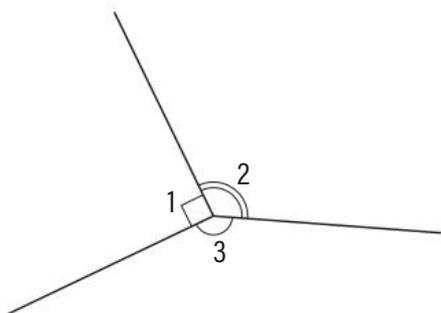
a) $19646 \div 517 = 38$

b) $3525 \div 47 = 65$

Answers: a) may be correct b) definitely wrong

16. [Units of Measurement] *
Circle the longest time.
1200 s half an hour **40 min**

17. [Measuring]
Measure the marked angles below:

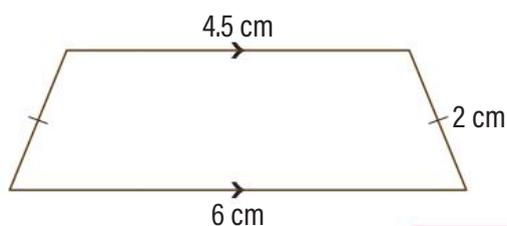


Angle 1 = **90°** Angle 2 = **120°**

Angle 3 = **150°**

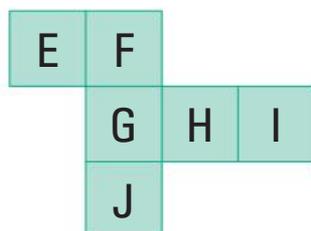
The sum of these angles is: **360°**

18. [Perimeter / Area]
Find the perimeter of the trapezium.



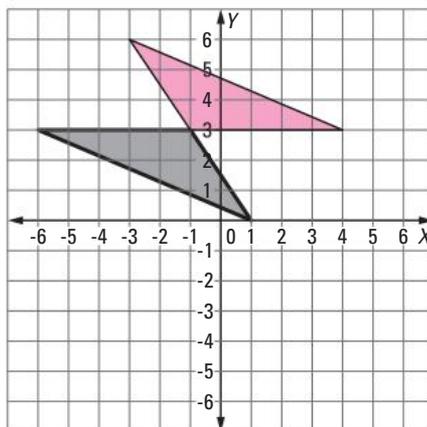
14.5 cm

19. [Shapes]
This net forms a cube when folded.
Which letter is on the face opposite to letter E?



H

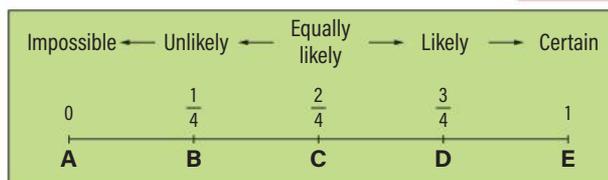
20. [Location / Transformation]
Redraw this triangle after rotating it 180° around the point of coordinates (-1,3).



21. [Statistics / Probability]
On the probability scale below, which letter A to E best represents the probability of this event?

"A number divisible by 3 is drawn at random from the numbers 1 to 8."

B



22. [Problem Solving 1]
Fill in the missing number.

$4 + 36 \div \mathbf{9} = 8$

23. [Problem Solving 2]
Fill in the magic square.
[Hint: Every row, column and diagonal has the same sum.]

12	16	17
20	15	10
13	14	18

24. [Problem Solving 3] *
How much is one book according to the diagram?

+ = \$45

+ = \$85

\$ 20





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	37	20	5	28	16	23	12	31	14	9
+ 5	42	25	10	33	21	28	17	36	19	14

2. [- Whole Numbers to 10]

	11	17	36	13	14	48	15	20	29	32
- 10	1	7	26	3	4	38	5	10	19	22

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MAGIC NUMBERS

◆ Take any 4-digit number with 4 different digits. (e.g. 3, 1, 7 & 9)

◆ Make the largest number you can. (9731)

◆ Then make the smallest number you can. (1379)

◆ Subtract it from your large number.

$$9731 - 1379 = 8352$$

◆ Now take this answer and repeat the process. (8532 - 2358)

(If your answer has only 3 digits, place a zero at the front.)

◆ What number will you always end up with?

Answer: 6174

5. [Large Number +]

$$\begin{array}{r} 5489 \\ + 3737 \\ \hline 9226 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 825 \\ 4 \overline{) 3300} \end{array}$$

12. [Place Value] *

Estimate the total cost by rounding each amount to the nearest hundred before adding:

$$\$79.00 + \$96.00 + \$309.00 + \$112.00$$

$$\$600.00$$

6. [Large Number -]

$$\begin{array}{r} 1000 \\ - 243 \\ \hline 757 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 12.1 \\ \times 4 \\ \hline 48.4 \end{array}$$

13. [Operations] *

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

$$4$$

10. [Fractions]

Write the mixed number shown by the arrow.

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



14. [Exploring Numbers]

What numbers are shown at points A and B?



$$A = -2 \quad B = -5$$

7. [Powers of 10 ×, ÷]

$$20900 \div 100 =$$

$$209$$

11. [Decimals / Fractions / Percentages]

If a \$200 pair of shoes is reduced by 10%, what is the discount?

$$\$20$$

15. [Number Patterns / Equations]

$$\frac{1}{2} \text{ of } 14 = 7$$

16. [Units of Measurement] *

The average uncooked potato has a mass of 150 g. How many potatoes would you expect to find in a 3 kg bag?

20

17. [Measuring] *

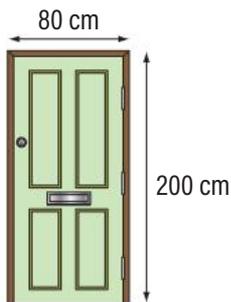
The flight to Los Angeles was scheduled for 8:45 am, but was delayed 95 minutes due to fog on the runway. What time did the flight depart? Answer using the 12-hour time format.

10 : 20 am

18. [Perimeter / Area]

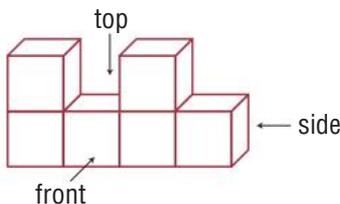
Find the area of this rectangular door.

[Area = length \times width]

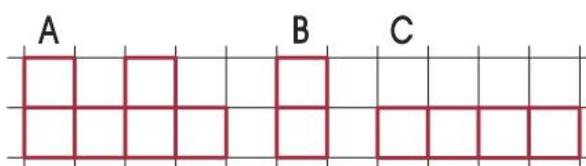


16000 cm²

19. [Shapes]



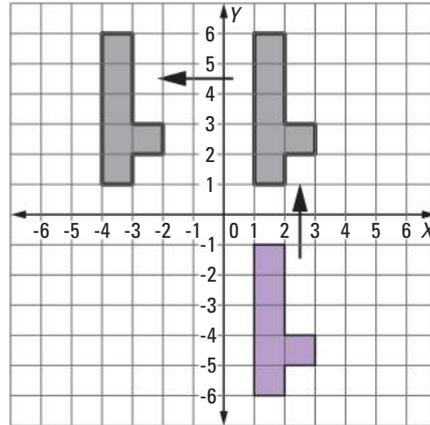
Which of the 2-dimensional shapes below is the side view of this 3-dimensional shape?



B

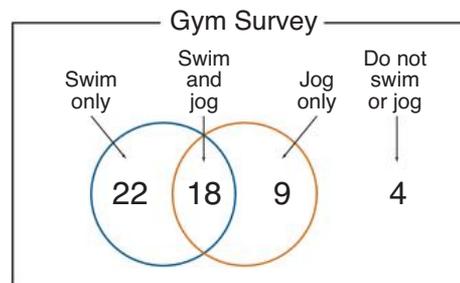
20. [Location / Transformation]

Redraw this shape after translating it 7 units up and 5 units left.



21. [Statistics / Probability]

Out of all those surveyed at the gym, how many people jog as part of or all of their exercise?



27

22. [Problem Solving 1] *

Which deal costs less per gram?

- A \$5 for 500 g
- B \$3 for 250 g

A

23. [Problem Solving 2] *

Each flag represents a different digit. Can you find the solution to the cipher?

$$3 + \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = \begin{array}{|c|} \hline \diagup \\ \hline \end{array} \begin{array}{|c|} \hline \diagup \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \diagup \\ \hline \end{array} \times \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = \begin{array}{|c|} \hline \diagup \\ \hline \end{array} \begin{array}{|c|} \hline \diagup \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \diagup \\ \hline \end{array} = 1, \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = 8, \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = 2, \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = 6$$

24. [Problem Solving 3]

Fill in the missing digits, using the digits 1 to 9.

$$\begin{array}{r} 1 \ 5 \ 9 \\ \times \quad \quad 6 \\ \hline 9 \ 5 \ 4 \end{array}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	16	32	25	11	39	30	23	17	24	18
+ 9	25	41	34	20	48	39	32	26	33	27

2. [- Whole Numbers to 10]

	14	12	30	15	16	17	28	13	11	19
- 8	6	4	22	7	8	9	20	5	3	11

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	10	80	90	30	70	60	50	100	40	20
÷ 10	1	8	9	3	7	6	5	10	4	2

5. [Large Number +]

$$\begin{array}{r} 3457 \\ 3044 \\ + 353 \\ \hline 6854 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 1155 \\ 8 \overline{)9240} \end{array}$$

12. [Place Value] *

Estimate the perimeter of a rectangular yard 6.1 m by 7.7 m by first rounding to the nearest metre.

28 m

6. [Large Number -]

$$\begin{array}{r} 4205 \\ - 2174 \\ \hline 2031 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 24.2 \\ \times 3 \\ \hline \end{array}$$

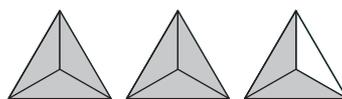
13. [Operations] *

$$6 - (8 - 3) + 3 =$$

4

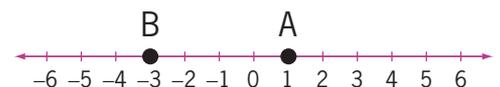
10. [Fractions]

Shade the triangles to show that $2\frac{2}{3} = \frac{8}{3}$



14. [Exploring Numbers]

What numbers are shown at points A and B?



A = 1 B = -3

7. [Powers of 10 ×, ÷]

$$3100 \div 10 =$$

310

11. [Decimals / Fractions / Percentages]

If a \$6000 TV is reduced by 25%, what is the discount?

\$1500

15. [Number Patterns / Equations]

$$\frac{1}{2} \text{ of } \mathbf{30} = 15$$

MOEBIUS MAGIC

A Mathematician confided,
That a Moebius band
is one sided,
And you'll get quite a laugh,
if you cut one in half,
for it stays in one piece
when divided!

- ◆ Draw a line down the middle of a long strip of paper.
- ◆ Make one twist in the strip and glue the ends together to form a band.
- ◆ Cut the band along the line you drew down the middle of your strip.
- ◆ Try with no twists.
- ◆ Try with two twists.

16. [Units of Measurement] *

A water tanker with a 5000 L capacity needed 3 deliveries to fill a new swimming pool. How many litres of water did the pool hold?

15 000 L

17. [Measuring] *

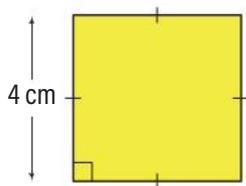
Teams in the Tour de France start at 5 minute intervals. The first team leaves at 2:15 pm. There are 21 teams. At what time does the final team depart? Answer using the 12-hour time format.

3 : 55 pm

18. [Perimeter / Area]

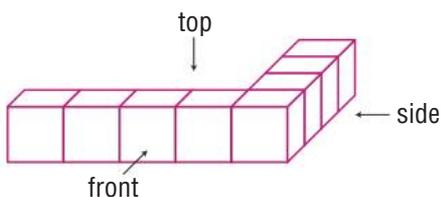
Find the area of this square.

[Area = length \times length]

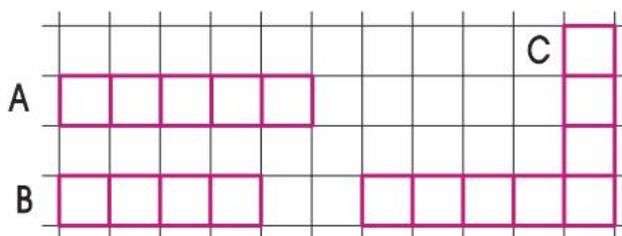


16 cm²

19. [Shapes]



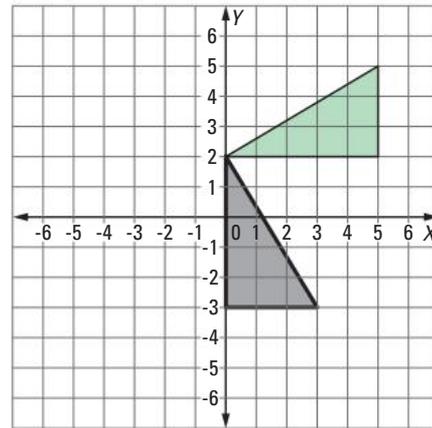
Which of the 2-dimensional shapes below is the front view of this 3-dimensional shape?



A

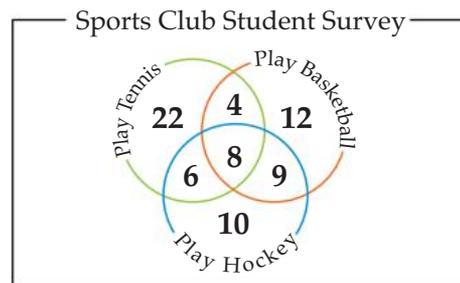
20. [Location / Transformation]

Redraw this triangle after rotating it 90° clockwise around the point of coordinates (0,2).



21. [Statistics / Probability]

Out of all the students surveyed at the sports club, a total of forty play tennis. How many of the students who play tennis also play basketball and hockey?



8

22. [Problem Solving 1] *

Which deal costs less per metre?

A \$1.50 for 15 m

B \$5 for 45 m

A

23. [Problem Solving 2] *

When Tony has his birthday tomorrow, his age in months will be the same as his grandfather's age in years. How old will Tony be if their combined ages will be 78?

6

24. [Problem Solving 3]

Fill in the missing digits in the multiplication.

$$\begin{array}{r} 2 \quad 4 \quad 6 \\ \times \quad \quad 3 \\ \hline 7 \quad 3 \quad 8 \end{array}$$



Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	19	10	15	7	31	24	38	22	33	16
+ 6	25	16	21	13	37	30	44	28	39	22

2. [- Whole Numbers to 10]

	18	15	19	12	14	10	27	33	11	26
- 6	12	9	13	6	8	4	21	27	5	20

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MAGIC NUMBERS

- ◆ Think of a number from 2 to 10.
- ◆ Multiply it by 9
- ◆ Add the two digits
- ◆ Subtract 5
- ◆ If your answer is 1, think of the letter A; if it is 2 think of the letter B and so on.
- ◆ Think of a country that begins with this letter.
- ◆ Think of the next letter in the alphabet.
- ◆ Think of a large animal that begins with this letter.
- ◆ Think of the colour of this animal.
- ◆ Are you thinking of a large grey elephant from Denmark?

5. [Large Number +]

$$\begin{array}{r} 612 \\ 65 \\ 987 \\ + 23 \\ \hline 1687 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 1038 \\ 9 \overline{)9342} \end{array}$$

12. [Place Value] *

Estimate the total cost by rounding to the nearest dollar:
\$12.15 + \$4.05 + \$7.75 + \$6.55

\$ 31.00

9. [Decimals]

$$\begin{array}{r} 4.52 \\ \times 2 \\ \hline 9.04 \end{array}$$

13. [Operations] *

$$9 - (3 + 1) \times 2 =$$

1

6. [Large Number -]

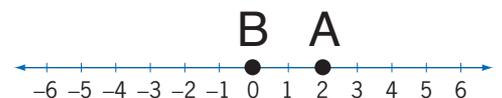
$$\begin{array}{r} 3765 \\ - 896 \\ \hline 2869 \end{array}$$

10. [Fractions]

$$3\frac{1}{6} + 2\frac{4}{6} = 5\frac{5}{6}$$

14. [Exploring Numbers]

Mark the following points on the number line:
A at +2 and B at 0.



7. [Powers of 10 ×, ÷]

$$8000 \div 100 =$$

80

11. [Decimals / Fractions / Percentages]

If an \$80 jumper is reduced by 20%, what is the discount?

\$ 16

15. [Number Patterns / Equations]

$$\frac{1}{4} \text{ of } 36 = 9$$

16. [Units of Measurement] *

How many metres in height is the Statue of Liberty (New York) if it is 30 times the height of a 154 cm person?

46.2 m

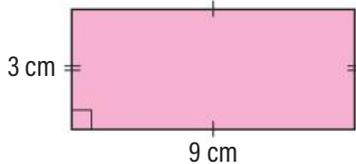
17. [Measuring] *

The starting time of the Sydney to Hobart Yacht race is 1:10 pm. Eighty minutes before this, other boats are excluded from the area. At what time must the other boats be gone? Answer using the 12-hour time format.

11 : 50 am

18. [Perimeter / Area]

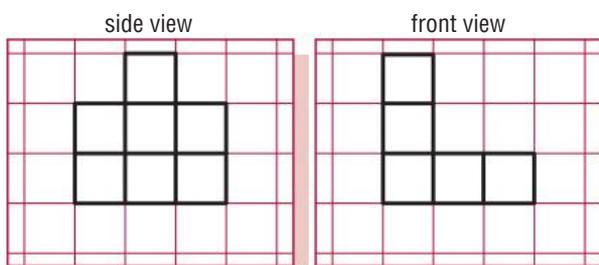
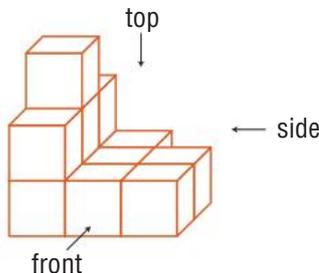
Find the area of this rectangle.



27 cm²

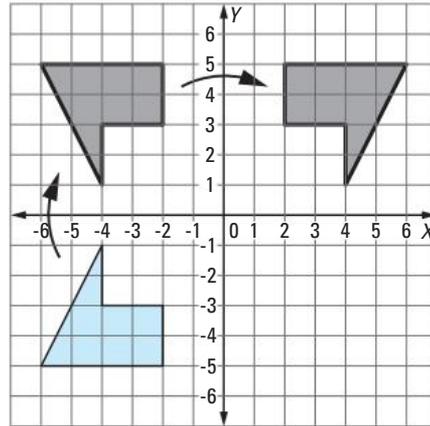
19. [Shapes]

Draw the side and front views of this 3-dimensional shape.



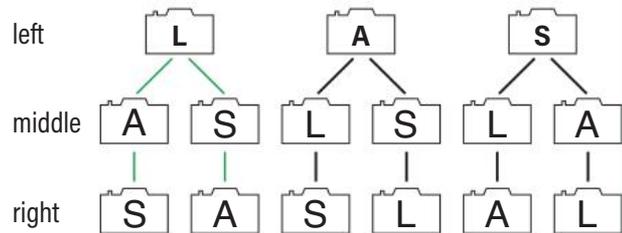
20. [Location / Transformation]

Redraw this shape after reflecting it in the X-axis and then in the Y-axis.



21. [Statistics / Probability]

In how many ways can Lisa, Amy and San be arranged for a group photo? [Complete the tree diagram to help you solve the problem.]



6

22. [Problem Solving 1] *

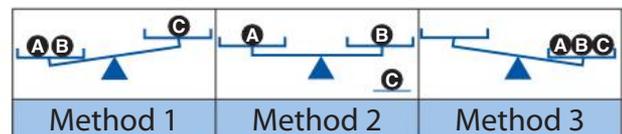
Which deal costs less per litre?

- A \$32 for 4 L
- B \$8.50 for 1 L

A

23. [Problem Solving 2] *

Three spheres are similar in appearance but only two are identical in weight. Which sphere is different in weight? Which method indicates this?



sphere = C method = 2

24. [Problem Solving 3]

Fill in the missing digits in the multiplication.

$$\begin{array}{r} 1 \ 2 \ 4 \\ \times \quad \quad 8 \\ \hline 9 \ 9 \ 2 \end{array}$$





Name:

Due Date: / /

Parent's Signature:

1. [+ Whole Numbers to 10]

	38	5	13	30	7	21	36	4	29	32
+ 8	46	13	21	38	15	29	44	12	37	40

2. [- Whole Numbers to 10]

	6	13	34	12	40	8	7	11	15	29
- 4	2	9	30	8	36	4	3	7	11	25

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	25	10	5	50	15	35	30	20	45	40
÷ 5	5	2	1	10	3	7	6	4	9	8

SPECIAL NUMBERS

Adding 1 to the product of 4 consecutive numbers always gives a square number.

(e.g. $3 \times 4 \times 5 \times 6 + 1 = 19^2$)

ALSO:

Adding 1 to the product of the first and last numbers (3×6) + 1 always gives the number that is being squared. In this example it is 19.

5. [Large Number +]

$$\begin{array}{r} 6518 \\ 144 \\ + 2970 \\ \hline 9632 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 1225 \\ 6 \overline{) 7350} \end{array}$$

12. [Place Value] *

Effie swam 2.2 km, rode her bike 13.6 km and ran 4.1 km. Estimate the total distance travelled by rounding to the nearest kilometre.

20 km

6. [Large Number -]

$$\begin{array}{r} 4382 \\ - 3769 \\ \hline 613 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 16.2 \\ \times 4 \\ \hline 64.8 \end{array}$$

13. [Operations] *

$$12 \div (6 - 4) - 1 =$$

5

7. [Powers of 10 ×, ÷]

$$50\,000 \div 100 =$$

500

10. [Fractions]

$$4\frac{2}{3} - 1\frac{1}{3} =$$

$3\frac{1}{3}$

14. [Exploring Numbers]

Mark the following points on the number line:

A at -4 and B at +4.



11. [Decimals / Fractions / Percentages]

If a \$300 dress is reduced by 40%, what is the discount?

\$120

15. [Number Patterns / Equations]

$$\frac{1}{3} \text{ of } 60 = 20$$

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 - 18



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32

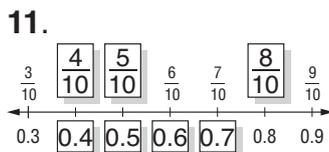


Record Keeping Sheets

pages 1 - 10

1.1

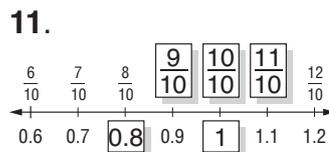
- 6,13,10,4,7,
5,12,11,8,9
- 2,9,10,8,6,
4,3,7,1,5
- 16,4,12,36,40,
20,32,8,24,28
- 2,9,10,8,6,
4,3,7,1,5
- 79
- 33
- 260
- 486
- 0.9
- $\frac{5}{8}$



- 2
- 11
- 1207
- 4, 1
- kilograms
- 80 mm (accept
75 to 85 mm)
- 100 mm
-
- Asia
- C
- 96 min
- 9 kg and 7 kg
- $$\begin{array}{r} 2 \quad \boxed{3} \quad 4 \\ + \boxed{7} \quad 1 \quad \boxed{6} \\ \hline 9 \quad \boxed{5} \quad 0 \end{array}$$

1.2

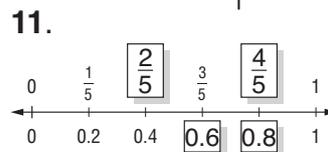
- 10,14,11,13,7,
12,8,9,16,15
- 10,5,4,8,3,
6,9,1,7,2
- 63,70,28,35,14,
21,49,42,56,7
- 1,7,6,3,4,
8,5,10,9,2
- 489
- 516
- 1830
- 840
- 2.11
- [any 4 small triangles]



- 5
- 21
- 3540
- 37, 44
- metres
- 7 cm (accept
6 to 8 cm)
- 14 cm
-
- B5
- 20%
- 9
- 5 kg and 8 kg
- $$\begin{array}{r} 1 \quad \boxed{5} \quad 7 \\ + 4 \quad 8 \quad \boxed{2} \\ \hline \boxed{6} \quad \boxed{3} \quad 9 \end{array}$$

1.3

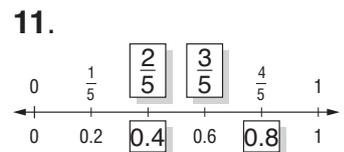
- 19,17,18,16,15,
13,14,11,12,20
- 8,3,5,2,9,
10,1,6,7,4
- 10,6,4,5,2,
1,7,3,8,9
- 10,4,7,8,5,
9,6,2,1,3
- 8697
- 243
- 5700
- 216
- 5.2
-



- 8
- 15
- 9099
- 54, 63
- 2
- 450 mL
- 12 cm
-
- E3
- 47%
- 24 min
- 2 kg
- $$\begin{array}{r} 2 \quad 0 \quad \boxed{9} \\ + \boxed{1} \quad \boxed{7} \quad 5 \\ \hline \boxed{3} \quad 8 \quad \boxed{4} \end{array}$$

1.4

- 15,13,14,12,9,
16,10,17,18,11
- 6,4,2,7,8,
9,10,5,3,1
- 42,30,36,24,6,
48,12,54,60,18
- 8,3,5,2,9,
10,1,6,7,4
- 659
- 1141
- 65 000
- 846
- 0.63
-



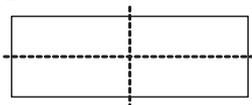
- 6
- 9
- 8001
- 16, 8
- 2
- 3.4 kg
- 110 mm
-
- A3 and C1
- \$170.00
- 75 s
- 9 kg and 5 kg
- $$\begin{array}{r} \boxed{1} \quad \boxed{4} \quad \boxed{6} \\ + 8 \quad 0 \quad 7 \\ \hline \boxed{9} \quad 5 \quad \boxed{3} \end{array}$$

1.5

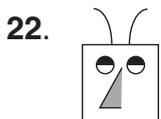
- 12,8,6,7,4, 3,9,5,10,11
- 5,2,1,10,3, 7,6,4,9,8
- 18,6,3,9,30, 12,21,24,15,27
- 1,8,9,3,7, 6,5,10,4,2
- 87
- 28
- 8
- 400
- \$0.05
- $\frac{3}{4}$



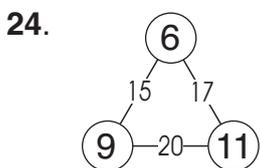
- 0.08
- 600
- B
- three hundred and nineteen
- 6
- 400 cm
- i) 4:25 pm
ii) 16:25
- 9
- 4
- 2



21. 410 000



23. 3

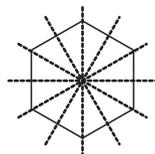


1.6

- 11,18,15,9,12, 10,17,16,13,14
- 1,8,9,3,7, 6,5,10,4,2
- 15,30,45,5,35, 10,50,25,20,40
- 8,5,1,10,9, 7,3,4,2,6
- 61
- 48
- 34
- 1221
- \$1.05
- $\frac{2}{3}$



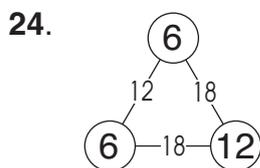
- 0.003
- 7
- 1
- two thousand and six
- 11
- 30 cm
- i) 8:50 pm
ii) 20:50
- 15
- 5
- 6



21. \$1500



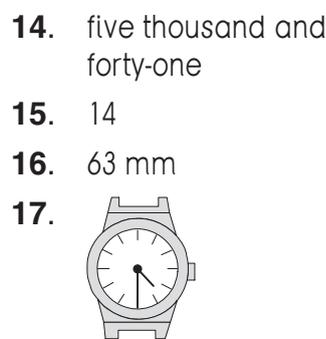
23. 3



1.7

- 16,17,8,13,14, 11,15,10,12,9
- 6,4,2,7,8, 9,10,5,3,1
- 14,4,16,18,12, 20,8,2,6,10
- 5,2,1,10,3, 7,6,4,9,8
- 5784
- 26
- 25
- 3000
- \$5.80
- $\frac{2}{4} > \frac{3}{8}$

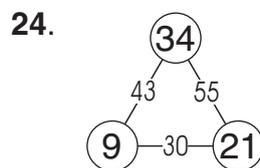
- $\frac{47}{100}$
- $\frac{9}{10}$ or 0.9
- 0
- five thousand and forty-one
- 14
- 63 mm



- 12 cm²
- 9
- A
- 5



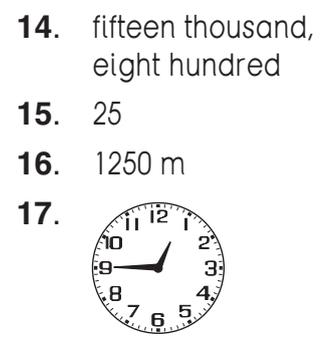
23. 28



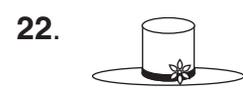
1.8

- 13,10,12,18,19, 14,17,11,15,16
- 2,9,3,6,8, 4,1,7,5,10
- 63,49,56,42,35, 21,28,7,14,70
- 4,1,3,5,7, 2,8,9,6,10
- 798
- 347
- 60
- 2011
- \$9.15
- $\frac{4}{5} < \frac{7}{8}$

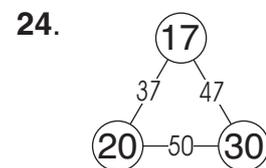
- $\frac{81}{1000}$
- $\frac{3}{1000}$ or 0.003
- C
- fifteen thousand, eight hundred
- 25
- 1250 m



- 10 cm²
- 7
- B
- 8 h

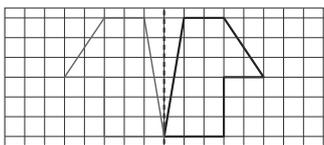


23. 4



2.1

- 9,7,6,8,14,
5,12,13,10,11
- 2,9,10,8,6,
4,3,7,1,5
- 27,21,24,18,15,
9,12,3,6,30
- 10,2,3,5,9,
8,7,4,6,1
- 384
- 195
- 25710
- 2700
- \$2.35
- $\frac{3}{4} = \frac{6}{8}$
- $\frac{1}{2}$
- B
- 19
- 36, 45
- 480, 960
- 6000 g
- 115°
- 18
- B
- 20.



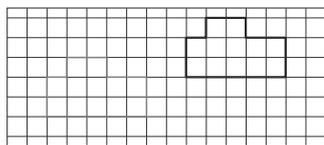
- Europe
- \$9.00
- $$\begin{array}{r} 3 \quad \boxed{7} \\ + \boxed{2} \quad 8 \\ \hline 6 \quad 5 \end{array}$$

24.

×	5	4	2
4	20	16	8
6	30	24	12
8	40	32	16

2.2

- 13,17,14,16,10,
15,11,12,19,18
- 9,4,13,5,6,
8,12,11,10,7
- 45,63,9,54,18,
27,90,81,36,72
- 3,6,2,8,4,
1,10,5,7,9
- 73
- 392
- 42200
- 5632
- \$0.75
- $\frac{2}{5} = \frac{8}{20}$
- $\frac{1}{4}$
- A
- 25
- A
- 162, 486
- 2000 kg
- 20°
- 14
- A
- 20.



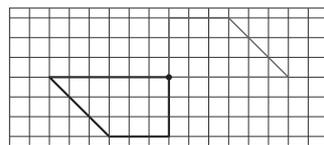
- 422
- \$80.00
- $$\begin{array}{r} 4 \quad \boxed{2} \quad 6 \\ + \boxed{3} \quad 7 \quad 8 \\ \hline 8 \quad 0 \quad \boxed{4} \end{array}$$

24.

×	9	5	6
3	27	15	18
7	63	35	42
5	45	25	30

2.3

- 10,11,8,9,13,
12,14,7,15,16
- 6,3,4,8,5,
10,9,2,1,7
- 50,30,20,25,10,
5,35,15,40,45
- 3,6,8,4,1,
7,5,10,2,9
- 664
- 697
- 30400
- 4015
- \$3.95
- $\frac{9}{15} = \frac{3}{5}$
- $\frac{3}{4}$
- A
- 18
- B
- 6, 3
- 15 t
- 75°
- 12 cm²
- C
- 20.



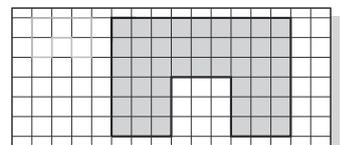
- 19
- \$3.00
- $$\begin{array}{r} 1 \quad 1 \quad \boxed{7} \\ 5 \quad 3 \quad 2 \\ + \boxed{2} \quad 6 \quad 9 \\ \hline 9 \quad \boxed{1} \quad 8 \end{array}$$

24.

×	8	4	2
3	24	12	6
6	48	24	12
1	8	4	2

2.4

- 14,12,13,11,8,
15,9,16,17,10
- 2,9,10,8,6,
4,3,7,1,5
- 18,60,42,6,24,
12,54,48,30,36
- 5,2,1,10,3,
7,6,4,9,8
- 862
- 794
- 115000
- 1680
- \$5.85
- $\frac{3}{12} = \frac{1}{4}$
- $\frac{3}{10}$
- B
- 28
- 48, 60
- 50, 25
- 3800 g
- 175°
- 17 cm²
- C
- 20.

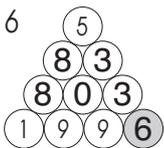


- 6000 m
- \$15.00
- $$\begin{array}{r} 3 \quad 4 \quad \boxed{7} \\ 2 \quad 4 \quad 7 \\ + 1 \quad \boxed{4} \quad 7 \\ \hline \boxed{7} \quad 4 \quad 1 \end{array}$$

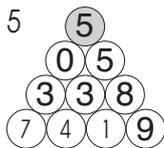
24.

×	3	7	4
9	27	63	36
1	3	7	4
2	6	14	8

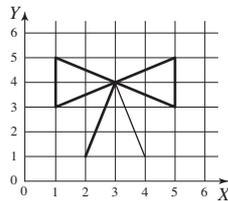
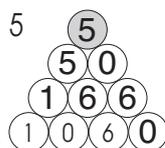
2.5

1. 12,9,11,17,18,
13,16,10,14,15
2. 2,1,10,8,4,
5,3,7,9,6
3. 72,80,32,40,16,
24,56,48,64,8
4. 8,5,1,10,9,
7,3,4,2,6
5. 609
6. 834
7. 5
8. 94
9. 20.49
10. $\frac{1}{3}$
11. 2.5
12. true
13. 7
14. 23
15. 5
16. 7000 mL
17. 54 cm³
18. 12 cm
19. 10
20. Shrek = (3,4)
Donkey = (5,1)
21. C
22. 6 
23. 36 L
24. TWO = 964

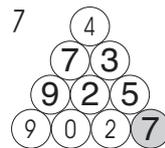
2.6

1. 12,13,10,14,8,
5,7,9,11,6
2. 8,3,5,2,9,
10,1,6,7,4
3. 18,2,14,4,20,
10,8,16,6,12
4. 6,4,2,7,8,
9,10,5,3,1
5. 975
6. 441
7. 32
8. 90
9. 13.02
10. $\frac{3}{5}$
11. 3.2
12. 0.375
13. 7
14. 12, 14, 15, 16, 18
15. 8
16. 9 L
17. 96 cm³
18. 18 cm
19. 5
20. worm = (7,4)
apple = (2,1)
21. B
22. 5 
23. 6
24. FOUR = 1468

2.7

1. 7,4,6,12,13,
8,11,5,9,10
2. 8,3,5,2,9,
10,1,6,7,4
3. 20,40,100,10,80,
90,60,70,50,30
4. 7,8,5,9,6,
2,1,3,10,4
5. 9217
6. 262
7. 67
8. 700
9. 8.38
10. B and D
11. 1.7
12. false
13. 24
14. 29
15. 7
16. 40 L
17. A
18. 15 cm²
19. A
20. 
21. A
22. 5 
23. Singleton
24. A = 1, B = 2,
C = 4

2.8

1. 12,10,11,9,6,
13,7,14,15,8
2. 8,5,9,2,4,
10,7,3,1,6
3. 10,6,4,5,2,
1,7,3,8,9
4. 1,8,9,3,7,
6,5,10,4,2
5. 189
6. 553
7. 845
8. 43
9. 74.79
10. A and D
11. 1.55
12. 15.078
13. 10
14. 23, 29
15. 6
16. 2500 mL
17. B
18. 24 cm²
19. rectangles
20. BE HAPPY
21. B
22. 7 
23. 2
24. SPEED = 23554

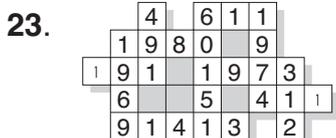
3.1

- 29, 24, 17, 33, 12, 25, 20, 16, 11, 18
- 7, 2, 10, 15, 4, 8, 3, 26, 9, 1
- 24, 40, 72, 64, 56, 32, 48, 8, 80, 16
- 3, 9, 10, 5, 8, 2, 6, 7, 4, 1
- 750
- 9
- 400
- 864
- 2.2
- $\frac{5}{6}$
- 13%
- 96, 116, 156, 159, 196
- 13
- 7

- 4
- 300 s
- 7:55 pm
- 102 m²
-

20. north

- $\frac{1}{5}$
- 48 and 49



24. 25

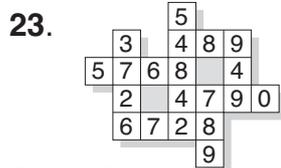
3.2

- 23, 28, 32, 27, 21, 16, 20, 14, 35, 29
- 15, 3, 4, 1, 2, 10, 9, 17, 8, 26
- 63, 54, 45, 90, 36, 18, 9, 72, 81, 27
- 7, 6, 8, 1, 9, 10, 4, 5, 2, 3
- 5947
- 518
- 83 000
- 1256
- 3.09
- $\frac{1}{8}$
- 80%
- 7.7, 7.17, 7.1, 7.01, 1.7
- 2
- 3, 5

- 8
- 240 min
- 1:50 am
- 93 cm²
- B

20. Latimer Square

- $\frac{23}{50}$
- 166 and 167



24. 13

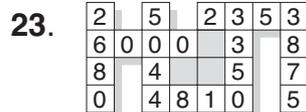
3.3

- 17, 15, 29, 23, 21, 24, 28, 32, 20, 16
- 6, 17, 4, 15, 3, 1, 10, 2, 28, 9
- 36, 32, 28, 16, 24, 4, 40, 8, 12, 20
- 1, 8, 2, 9, 10, 3, 7, 5, 6, 4
- 857
- 78
- 7000
- 2232
- 4.44
- $\frac{5}{7}$
- 0.75
- 5.5, 5.4, 5.04, 5, 4.54
- 1
- $90 = 2 \times 3 \times 3 \times 5$

- 72
- 10 h
- 3:15 pm
- 184 m²
-

20. country: Egypt (2,1)

- $\frac{1}{3}$
- 31, 32 and 33



24. 23

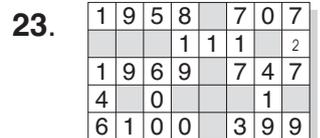
3.4

- 12, 17, 11, 16, 30, 24, 18, 29, 15, 23
- 2, 23, 10, 9, 14, 8, 5, 7, 1, 26
- 14, 28, 70, 7, 56, 63, 42, 49, 35, 21
- 10, 2, 3, 5, 9, 8, 7, 4, 6, 1
- 3898
- 109
- 40 000
- 1984
- 10.34
- $\frac{7}{12}$
- 0.9
- 2.23, 2.32, 2.33, 3.22, 3.23
- 10
- $72 = 2 \times 2 \times 2 \times 3 \times 3$

- 48
- 60 h
- 6:30 am
- 98 m²
-

20. city: Fort Collins (7,7)

- $\frac{5}{8}$
- 22, 23, 24 and 25

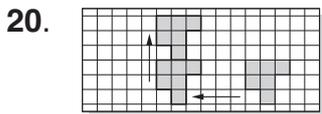


24. 22

3.5

- 12, 24, 18, 13, 17, 25, 20, 26, 9, 21
- 21, 10, 9, 17, 3, 4, 12, 6, 8, 15
- 36, 32, 28, 16, 24, 4, 40, 8, 12, 20
- 2, 3, 7, 6, 8, 1, 9, 10, 4, 5
- 131
- 197
- 6
- 57
- \$24.20
- $\frac{5}{8}$

- 75%
- 2500
- 11
- 2, 4
- 19, 25
- 8000 mm
- 7 min
- A
- B



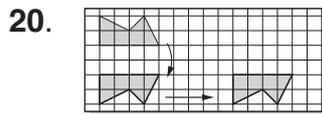
- 14 L
- $$\begin{array}{r} \boxed{9} \ 8 \\ - \ 2 \ \boxed{6} \\ \hline 7 \ 2 \end{array}$$

- 16
- Wales vs England

3.6

- 22, 25, 31, 10, 17, 24, 16, 18, 29, 23
- 1, 6, 2, 3, 20, 9, 4, 8, 25, 7
- 35, 63, 42, 14, 7, 21, 70, 28, 49, 56
- 4, 2, 9, 8, 5, 6, 3, 10, 7, 1
- 6173
- 94
- 7
- 77
- \$16.50
- $\frac{3}{8}$

- 0.83
- 4
- 6
- 2, 3, 5, 10
- 32, 35
- 4000 kg
- 10:54 am
- C
- C



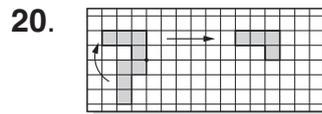
- 80°C
- $$\begin{array}{r} 1 \ 6 \\ \boxed{2} \ \boxed{9} \\ + \ 5 \ 1 \\ \hline 9 \ 6 \end{array}$$

- 5
- Canada vs Morocco

3.7

- 16, 17, 28, 20, 13, 25, 14, 19, 22, 31
- 10, 1, 8, 9, 16, 27, 5, 3, 2, 4
- 15, 21, 3, 18, 6, 9, 30, 27, 12, 24
- 3, 6, 8, 4, 1, 7, 5, 10, 2, 9
- 5877
- 395
- 44
- 74
- \$12.35
- $\frac{5}{6}$

- 0.7
- 4.6
- 27
- 3, 9
- 15, 9
- 40 L
- 58 min
- 4
- square



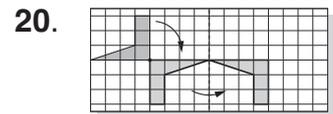
- fat
- $$\begin{array}{r} \boxed{7} \ 9 \\ - \ 5 \ \boxed{6} \\ \hline 2 \ 3 \end{array}$$

- 12
- Cameroon vs Brazil

3.8

- 15, 8, 33, 17, 20, 36, 19, 31, 12, 24
- 26, 3, 4, 8, 5, 10, 19, 2, 11, 7
- 6, 42, 30, 60, 12, 54, 18, 36, 48, 24
- 6, 10, 4, 1, 3, 5, 7, 2, 8, 9
- 9943
- 199
- 82
- 46
- \$20.91
- $\frac{7}{12}$

- $\frac{25}{100} = \frac{1}{4}$, 25%
- 3.87
- 15
- 2, 4, 5, 10
- 25, 15
- 5 kg
- 27 min
- 9
- hexagon

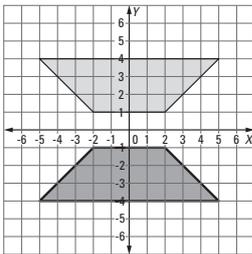


- business
- $$\begin{array}{r} 1 \ 7 \\ \boxed{4} \ \boxed{2} \\ + \ 3 \ 6 \\ \hline 9 \ 5 \end{array}$$

- 9
- Japan vs Spain

4.1

- 30,15,39,17,36,
13,24,18,12,31
- 5,2,11,10,3,
27,6,34,19,48
- 24,48,8,72,56,
16,80,40,32,64
- 8,3,5,2,9,
10,1,6,7,4
- 1013
- 681
- 3600
- 2457
- 34
- 6
- \$20
- 40
- 9
- A
- 5, 4,7
- 3000 cm 3 m **3 km**
- angle 1 = 140°
angle 2 = 140°
angles are equal
- 12 cm
- rectangular prism
- 20.

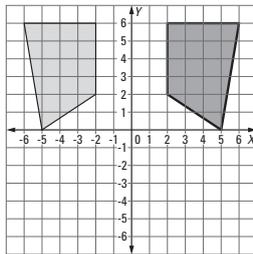


- B
- 3
- | | | |
|---|----|---|
| 4 | 11 | 3 |
| 5 | 6 | 7 |
| 9 | 1 | 8 |
- 24.

Hangs on a wall c l o **C** k
7 days w **E** e k
3600 every hour s e c o **N** d s
On your wrist w a **T** c h
60 seconds m i n **U** t e
60 minutes h o u **R**
1440 minutes d a **Y**

4.2

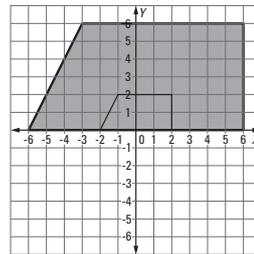
- 18,36,23,14,19,
32,11,17,35,20
- 8,23,5,2,9,
30,11,6,37,4
- 45,35,40,30,25,
15,20,5,10,50
- 8,5,1,10,9,
7,3,4,2,6
- 2519
- 875
- 90000
- 5976
- 11.2
- 4
- \$8
- 2500
- 3
- B
- 9.5, 10.6
- 10 t** 40000 g 6000 kg
- angle 1 = 35°
angle 2 = 145°
sum = 180°
- 160 mm
- T
- 20.



- G
- 45
- | | | |
|---|---|----|
| 9 | 5 | 4 |
| 1 | 6 | 11 |
| 8 | 7 | 3 |
24. 34

4.3

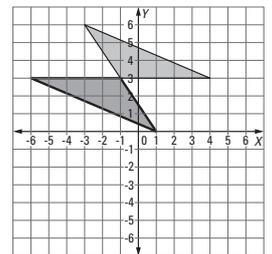
- 43,30,39,18,41,
34,22,45,27,16
- 6,14,22,7,8,
9,30,5,13,11
- 16,32,20,28,4,
24,8,12,40,36
- 10,4,7,8,5,
9,6,2,1,3
- 8092
- 3573
- 80000
- 4234
- 575
- 15
- \$15
- 15
- 1
- +9
- $\frac{28}{11}, \frac{25}{11}$
- 8000 mL 7 L **900 mL**
- angle 1 = 30°
angle 2 = 60°
sum = 90°
- 19 cm
- triangular prism
- 20.



- C
- 7
- | | | |
|----|----|----|
| 12 | 4 | 11 |
| 8 | 9 | 10 |
| 7 | 14 | 6 |
24. \$11800

4.4

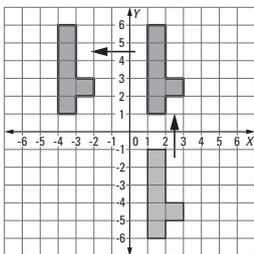
- 14,41,26,19,38,
22,33,15,10,27
- 6,31,20,2,23,
5,9,28,27,24
- 90,100,40,50,20,
30,70,60,80,10
- 1,7,6,3,4,
8,5,10,9,2
- 1519
- 6877
- 570000
- 3776
- 960
- \$300
- \$10
- 2
- 35
- 100
- $1\frac{4}{7}, 1\frac{5}{7}$
- 1200 s half an hour **40 min**
- angle 1 = 90°
angle 2 = 120°
angle 3 = 150°
sum = 360°
- 14.5 cm
- H
- 20.



- B
- 9
- | | | |
|----|----|----|
| 12 | 16 | 17 |
| 20 | 15 | 10 |
| 13 | 14 | 18 |
24. \$20

4.5

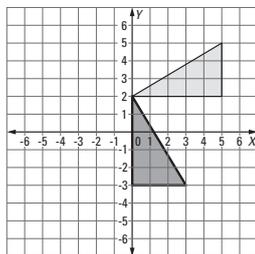
- 42,25,10,33,21, 28,17,36,19,14
- 1,7,26,3,4, 38,5,10,19,22
- 21,42,63,7,49, 14,70,35,28,56
- 10,4,7,8,5, 9,6,2,1,3
- 9226
- 757
- 209
- 825
- 48.4
- $1\frac{3}{4}$
- \$20
- \$600.00
- 4
- $A = -2$ $B = -5$
- 14
- 20
- 10:20 am
- 16 000 cm^2
- B



- 27
- A
- $\begin{array}{|c|c|} \hline \square & \square \\ \hline \square & \square \\ \hline \end{array} = 1$
 $\begin{array}{|c|c|} \hline \square & \square \\ \hline \square & \square \\ \hline \end{array} = 8$
 $\begin{array}{|c|c|} \hline \square & \square \\ \hline \square & \square \\ \hline \end{array} = 2$
 $\begin{array}{|c|c|} \hline \square & \square \\ \hline \square & \square \\ \hline \end{array} = 6$
- $$\begin{array}{r} 1 \ \boxed{5} \ 9 \\ \times \quad \quad 6 \\ \hline \boxed{9} \ \boxed{5} \ \boxed{4} \end{array}$$

4.6

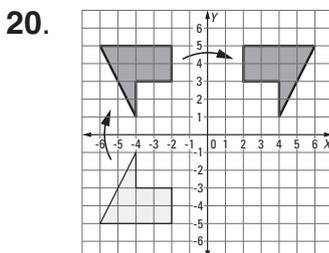
- 25,41,34,20,48, 39,32,26,33,27
- 6,4,22,7,8, 9,20,5,3,11
- 8,2,6,18,20, 10,16,4,12,14
- 1,8,9,3,7, 6,5,10,4,2
- 6854
- 2031
- 310
- 1155
- 72.6
-
- \$1500
- 28 m
- 4
- $A = 1$ $B = -3$
- 30
- 15 000 L
- 3:55 pm
- 16 cm^2
- A



- 8
- A
- 6
- $$\begin{array}{r} 2 \ \boxed{4} \ 6 \\ \times \quad \quad 3 \\ \hline \boxed{7} \ \boxed{3} \ \boxed{8} \end{array}$$

4.7

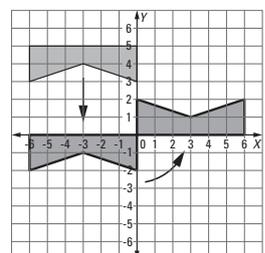
- 25,16,21,13,37, 30,44,28,39,22
- 12,9,13,6,8, 4,21,27,5,20
- 60,36,24,30,12, 6,42,18,48,54
- 2,9,3,6,8, 4,1,7,5,10
- 1687
- 2869
- 80
- 1038
- 9.04
- $5\frac{5}{6}$
- \$16
- \$31.00
- 1
-
- 36
- 46.2 m
- 11:50 am
- 27 cm^2
-



- 6
- A
- sphere = C
method = 2
- $$\begin{array}{r} 1 \ \boxed{2} \ 4 \\ \times \quad \quad 8 \\ \hline \boxed{9} \ \boxed{9} \ \boxed{2} \end{array}$$

4.8

- 46,13,21,38,15, 29,44,12,37,40
- 2,9,30,8,36, 4,3,7,11,25
- 63,18,72,81,54, 90,36,9,27,45
- 5,2,1,10,3, 7,6,4,9,8
- 9632
- 613
- 500
- 1225
- 64.8
- $3\frac{1}{3}$
- \$120
- 20 km
- 5
-
- 60
- 50 km
- 12:55 pm
- 8100 m^2
-



- 12
- B
- 90 cm
- $$\begin{array}{r} \quad \quad 2 \ 7 \\ \times \ \boxed{3} \ 5 \\ \hline \boxed{1} \ \boxed{3} \ \boxed{5} \\ \boxed{8} \ \boxed{1} \ 0 \\ \hline 9 \ \boxed{4} \ \boxed{5} \end{array}$$

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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 - 18



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10

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 sentence deciding which operations to use, given the word statements.
2. Look for a pattern then make and test generalisations that describe the relationship between variables.
3. Draw a diagram: sketch
table
graph
number line

OR Make a model.
4. Simplify the problem and work on a reduced version. Extrapolate back to the original problem.
5. Be systematic. Make a list. Progress step by step.
6. Work backwards if you have the answer.
7. 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?

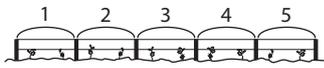
PRESENTATION:

- * Choose suitable modes of communication to present and explain your outcomes and results.

1.1

22. **Hint:** Draw a diagram. Consider the number of spaces between posts, rather than the number of posts. Find how long to plant one vine. Use minutes.

Solution:



In the first row there are 6 posts leaving 5 spaces between each post. Each space had 2 vines.

$$5 \times 2 = 10 \text{ vines.}$$

10 vines take 1 hour or 60 minutes to plant.

So 1 vine will take one tenth of that, or 6 minutes to plant.



In the second row there are 9 posts leaving 8 spaces. Each space had 2 vines.

$$8 \times 2 = 16 \text{ vines.}$$

$$16 \text{ vines} \times 6 \text{ minutes} = 96 \text{ minutes.}$$

It will take Ragan **96** minutes to plant vines between the 9 posts in the second row.

23. **Hint:** Add all weights on the scale. Halve the sum to find what each side should weigh.

Solution: Side A) weighs $3 + 4 + 9 = 16$ kg

Side B) weighs $5 + 7 = 12$ kg

Together the sides weigh $12 + 16 = 28$ kg

For both sides to be in balance they should each weigh half of this or 14 kg.

The weights can be rearranged taking 2 kg from side A) and giving 2 kg to side B). They then look like this:



So **9** kg and **7** kg should be swapped.

24. **Hint:** Start with the easiest. Use trial and error. Consider the carry overs.

Solution:

Units $4 + ? = _$ last digit zero. $2 \square 4$
 $4 + 6 = 10$
 Write in the 6 and carry 1 to the tens. $+ \square 1 \square 6$
 $9 \square 0$

Tens $? + 1 + \text{carry } 1 = ?$
 There are 2 missing digits and they can't be the same. The remaining digits are 3, 5, 7 and 8.

Try 3: $3 + 1 + \text{carry } 1 = 5$ (correct)
 Write in the 3 and the 5 as a trial.

Hundreds $2 + ? = 9$
 $2 + 7 = 9$ Write in the 7. $2 \square 3 4$
 $+ \square 7 1 \square 6$
 $9 \square 5 0$

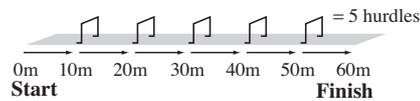
Check the sum.

The missing digits are:

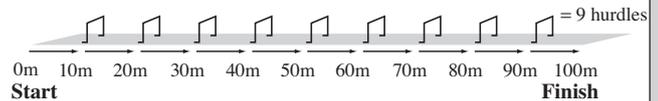
1.2

22. **Hint:** Draw a diagram.

Solution: The 60 m race looks like this:



A 100 m race would look like this:



There would be **9** hurdles required for a 100 m race.

23. **Hint:** Add all weights on the scale. Halve the sum to find what each side should weigh.

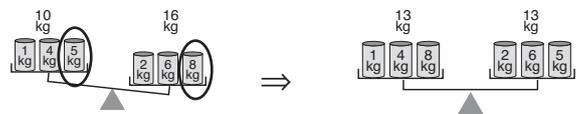
Solution: Side A) weighs $1 + 4 + 5 = 10$ kg

Side B) weighs $2 + 6 + 8 = 16$ kg

Together the sides weigh $10 + 16 = 26$ kg

For both sides to be in balance they should each weigh half of this or 13 kg.

The weights can be rearranged taking 3 kg from side B) and giving 3 kg to side A). They then look like this:



So **5** kg and **8** kg should be swapped.

24. **Hint:** Start with the easiest. Use trial and error. Consider the carry overs.

Solution:

Units $7 + ? = 9$

$$7 + 2 = 9$$

Write in the 2.

$$\begin{array}{r} 1 \square 7 \\ + 4 8 \square \\ \hline \square \square 9 \end{array}$$

Tens Possible digits in the tens position are now 0, 3, 5 and 6.

Try 0: $0 + 8 = 8$ (not possible because 8 is used)

Try 3: $3 + 8 = 11$ (not possible because 1 is used).

Try 5: $5 + 8 = 13$ (correct)
 Write in the 5 and the 3 as a trial.

Carry 1 to the hundreds.

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

Hundreds $1 + 4 + \text{carry } 1 = 6$
 Write in the 6.

Check the sum.

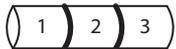
The missing digits are:

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

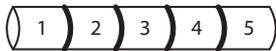
1.3

22. **Hint:** Draw a diagram. Consider the number of cuts, rather than the number of pieces. Find out how long it takes to make 1 cut.

Solution: Sawing a pole into 3 pieces involves 2 cuts.



If this takes 12 minutes then each cut would take half of that or 6 minutes.



Sawing a pole into 5 pieces would require 4 cuts, each taking 6 minutes.

$$4 \times 6 = 24$$

It would take Sarah **24** minutes to saw a pole into five pieces.

23. **Hint:** First find the weight of one white sphere.

Solution: $\circ \circ \circ \circ = 16 \text{ kg}$

then $\circ = 16 \div 4$

So $\circ = 4$

And if $\bullet \bullet \bullet = \circ \circ$

then $\bullet \bullet \bullet = 4 + 4 = 8$

then $\bullet = 8 \div 4$

So $\bullet = 2$

One black sphere weighs **2** kg.

24. **Hint:** Complete what is given. Start with the easiest. Use trial and error. Consider the carry overs.

Solution: Remaining digits are 1, 3, 4, 6, 7 and 9.

Units $? + 5 = ?$

First look at the tens. There must be a carry for 8 not to be repeated.

Remaining digits that may be added to 5 are 6, 7 and 9.

Try 6:

$$\begin{array}{r} 20\boxed{6} \\ + \boxed{?}\boxed{?}5 \\ \hline \boxed{?}8\boxed{1} \end{array}$$

$6 + 5 = 11$ (possible)

Write in 6 and 1 and carry the 1.

Tens

$$\begin{array}{r} 20\boxed{6} \\ + \boxed{?}\boxed{7}5 \\ \hline \boxed{?}8\boxed{1} \end{array}$$

$0 + ? + \text{carry } 1 = 8$

$0 + 7 + 1 = 8$ (possible)

Write in the 7.

Hundreds Remaining digits are 3, 4, and 9.

These digits will not work in this position because none of these digits, added to 2, will result in any of the remaining possibilities.

Go back to the units and try 7 then 9 if necessary.

Check the sum.
The missing digits are:

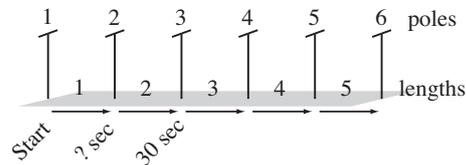
$$\begin{array}{r} 20\boxed{9} \\ + \boxed{1}\boxed{7}5 \\ \hline \boxed{3}8\boxed{4} \end{array}$$

1.4

1.3 - 1.4

22. **Hint:** Draw a diagram. Consider the length between poles, rather than the number of poles. Find the time required to jog between 2 poles (i.e. 1 length).

Solution: It takes Kaitlan 30 seconds to jog between 3 power poles so it would take her half of that or 15 seconds to jog between 2 power poles. This is 1 length.



Reaching pole 6 would mean she has jogged 5 lengths between poles.

$$5 \times 15 = 75 \text{ seconds}$$

It would take Kaitlan **75** seconds to reach pole six.

23. **Hint:** Add all weights on the scale. Halve the sum to find what each side should weigh.

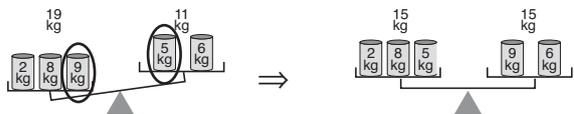
Solution: Side A) weighs $2 + 8 + 9 = 19 \text{ kg}$

Side B) weighs $5 + 6 = 11 \text{ kg}$

Together the sides weigh $11 + 19 = 30 \text{ kg}$

For both sides to be in balance they should each weigh half of this or 15 kg.

The weights can be rearranged taking 4 kg from side A) and giving 4 kg to side B). They then look like this:



So **9** kg and **5** kg should be swapped.

24. **Hint:** Complete what is given. Start with the easiest. Use trial and error. Consider the carry overs.

Solution:

Tens $5 + 0 = 5$ (not possible, 5 is used)

so $4 + 0 + \text{carry } 1 = 5$

Write in the 4.

$$\begin{array}{r} 1 \\ \boxed{4} \\ + 807 \\ \hline \boxed{5} \end{array}$$

Units $? + 7 = ?$ The sum must have a carry over of 1. The remaining digits are 3, 6 and 9.

Try 3: $3 + 7 = 10$ (not possible because 0 is used)

Try 6: $6 + 7 = 13$ (possible)

Write in the 6 and 3.

$$\begin{array}{r} 1 \\ \boxed{4}\boxed{6} \\ + 807 \\ \hline \boxed{5}\boxed{3} \end{array}$$

Hundreds $? + 8 = ?$

The result must be less than 10.

Of the remaining digits, 1, 2 and 9, the only possible digit to try is 1.

Try 1: $1 + 8 = 9$ (possible)

Write in the 1 and 9.

$$\begin{array}{r} 1 \\ \boxed{1}\boxed{4}\boxed{6} \\ + 807 \\ \hline \boxed{9}5\boxed{3} \end{array}$$

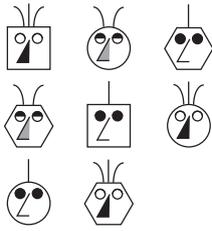
Check the sum.

The missing digits are:

1.5

22. **Hint:** List the characteristics that can change. Look for patterns.

Solution:



The characteristics that can change are:

1. Shape of face (square, circle, hexagon)
2. Nose colour (dark, medium, light)
3. Eyes (open, half open, shut)
4. Hair strands (one, two, three)

The pattern is that every row and column has faces of different shapes with different noses, eyes and hair.

The missing face is:



23. **Hint:** Use trial and error.

Solution: There must be at least one of each type of game so $\$12 + \$14 = \$26$. The teacher spent $\$64$. That leaves $\$64 - \$26 = \$38$ to decide about. Neither 12 nor 14 go evenly into 38 so she must have bought at least one more of each type of game. She has now spent $\$26 + \$12 + \$14 = \52 . That leaves $\$64 - \$52 = \$12$, which is the cost of one of the types.

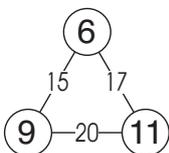
Checking: $\$12 + \$12 + \$12 + \$14 + \$14 = \64

So the teacher bought **3** twelve dollar games.

24. **Hint:** Guess a number in the top circle and observe your results. Use trial and error.

Solution: Whatever number you place in the top circle, to get 15 and 17 on both sides, the numbers in your two base circles must have the same difference which is 2. You therefore require two numbers that have a difference of 2 but add to 20.

By trial and error we get to 9 and 11. The 9 must go in the left circle where the smaller number is required to add to 15. The 11 goes in the right circle. This leads to a 6 at the top.



1.6

1.5 - 1.6

22. **Hint:** List the characteristics that can change. Look for patterns.

Solution:



The characteristics that can change are:

1. Roof (edged, smooth, corrugated)
2. Chimney (dark, medium, light)
3. Window (tinted, clear, paned)
4. Door position (right, left)

One pattern is that every row has the same roof but different chimneys and windows.

Another pattern is that each column has the same window but different roofs and chimneys. The doors alternate both in the rows and columns. The missing house is:



23. **Hint:** Use trial and error. Start with any reasonable guess.

Solution: Guess Jo bought 4 of each flower.

4 tulips would cost $4 \times \$6 = \24

4 orchids would cost $4 \times \$7 = \28

That would cost Jo $\$52$ (false). Jo spends $\$1$ more than this. You need more of the expensive flower, so try 3 tulips and 5 orchids.

3 tulips would cost $3 \times \$6 = \18

5 orchids would cost $5 \times \$7 = \35

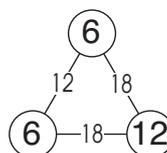
That would cost Jo $\$53$ (true).

Jo bought **3** tulips.

24. **Hint:** Guess a number in the top circle and observe your results. Use trial and error.

Solution: Whatever number you place in the top circle, to get 12 and 18 on both sides, the numbers in 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 18.

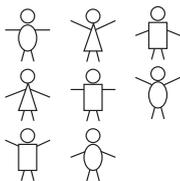
By trial and error we get to 6 and 12. The 6 must go in the left circle where the smaller number is required to add to 12. The 12 goes in the right circle. This leads to a 6 at the top.



1.7

22. **Hint:** List the characteristics that can change. Look for patterns.

Solution:



The characteristics that can change are:

1. Body shape (oval, triangle, rectangle)
2. Arm position (out, up, down)

The pattern is that every row and column has different body shapes and arm positions.

The missing figure is:



23. **Hint:** Use trial and error. Look for a pattern.

Tabulate your trials.

Solution: Make your trials so that there are always 40 rooms.

Guess 20 rooms of 2 beds and 20 rooms of 3 beds.

$$20 \times 2 + 20 \times 3 = 40 + 60 = 100 \text{ beds (false)}$$

There are 8 too many beds in this trial so decrease the number of rooms with more beds.

Guess 21 rooms of 2 beds and 19 rooms of 3 beds.

$$21 \times 2 + 19 \times 3 = 42 + 57 = 99 \text{ beds (false)}$$

There are 7 too many beds in this trial.

Guess 22 rooms of 2 beds and 18 rooms of 3 beds.

$$22 \times 2 + 18 \times 3 = 44 + 56 = 98 \text{ beds (false)}$$

There are 6 too many beds in this trial.

A pattern is emerging. Continue in this way.

You will find that **28** rooms have 2 beds.

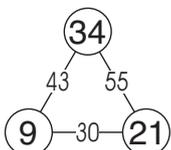
Total rooms	rooms - 2 beds	rooms - 3 beds	Total beds
40	20	20	$40 + 60 = 100$
40	21	19	$42 + 57 = 99$
40	22	18	$44 + 54 = 98$
40	23	17	$46 + 51 = 97$
40	24	16	$48 + 48 = 96$
40	25	15	$50 + 45 = 95$
40	26	14	$52 + 42 = 94$
40	27	13	$54 + 39 = 93$
40	28	12	$56 + 36 = 92$

24. **Hint:** Guess a number in the top circle and observe your results. Use trial and error.

Solution: Whatever number you place in the top circle, to get 43 and 55 on both sides, the numbers in your two base circles must have the same difference which is 12. You therefore require two numbers that have a difference of 12 but add to 30.

By trial and error we get to 9 and 21.

The 9 must go in the left circle where the smaller number is required to add to 43. The 21 goes in the right circle. This leads to a 34 at the top.

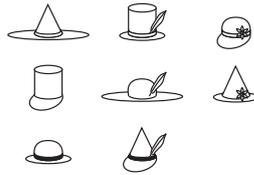


1.8

1.7 - 1.8

22. **Hint:** List the characteristics that can change. Look for patterns.

Solution:



The characteristics that can change are:

1. Hat shape (cone, cylinder, half sphere)
2. Brim (large, small, peaked)
3. Band (light, none, dark)
4. Trim (none, feather, flower)

One pattern is that every row has the same band but different hat shape, brim and trim.

Another pattern is that each column has the same trim but different hat shape, brim and band.

The missing hat is:



23. **Hint:** Use trial and error. Look for a pattern.

Tabulate your trials.

Solution: Make your trials so that there are always 17 shapes.

Guess 7 triangles and 10 squares.

$$7 \times 3 + 10 \times 4 = 21 + 40 = 61 \text{ sides (false)}$$

There are 3 less sides in this trial so increase the number of the shape with more sides i.e. squares.

Guess 6 triangles and 11 squares.

$$6 \times 3 + 11 \times 4 = 18 + 44 = 62 \text{ sides (false)}$$

There are 2 less sides in this trial.

A pattern is emerging. Continue in this way. You will find that **4** triangles were used in the pattern.

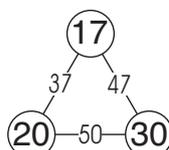
Total shapes	triangle - 3 sides	square - 4 sides	Total sides
17	7	10	$21 + 40 = 61$
17	6	11	$18 + 44 = 62$
17	5	12	$15 + 48 = 63$
17	4	13	$12 + 52 = 64$

24. **Hint:** Guess a number in the top circle and observe your results. Use trial and error.

Solution: Whatever number you place in the top circle, to get 37 and 47 on both sides, the numbers in your two base circles must have the same difference which is 10. You therefore require two numbers that have a difference of 10 but add to 50.

By trial and error we get to 20 and 30.

The 20 must go in the left circle where the smaller number is required to add to 37. The 30 goes in the right circle. This leads to a 17 at the top.



2.1

- 22. Hint:** Find how many pencils you could buy for the cost of 1 eraser.
Solution:
 We know 4 pencils cost as much as 2 erasers.
 That means 2 pencils cost the same as 1 eraser.
 So if 1 eraser costs \$1.50, then 2 pencils cost \$1.50
 You need 6 lots of 2 pencils to get 12 pencils, therefore the cost is also 6 times the cost of 2 pencils.
 $\$1.50 \times 6 = \9.00
 Twelve pencils would cost **\$9.00**

- 23. Hint:** Use trial and error. Consider the carry overs.
Solution: There must be a carry over from the units column to the tens because the digit in the solution (5) is less than the given digit in the sum (8).

Units Ask yourself: 8 and what number have the sum ending in 5?
 $8 + ? = \underline{5}$
 $8 + 7 = 15$
 Write in the 7 and carry the 1 to the tens.

3	7
+ □	8
6	5

Tens Ask yourself: 3 plus 1 that was carried plus what number add to 6?
 $3 + \text{carry } 1 + ? = 6$
 $3 + 1 + 2 = 6$
 Write in the 2.

1	7
3	7
+ □	8
6	5

Check the sum.
 The missing digits are:

- 24. Hint:** Start on a row or column where you have 2 of the 3 numbers in the multiplication. Be systematic.
Solution: The intersection of the row starting with 6 and the column starting with 4 can be filled first.
 $6 \times 4 = 24$
 Fill in 24.
 The intersection of the row starting with 6 and the column starting with 2 can also be filled.
 $6 \times 2 = 12$
 Fill in 12.

×		4	2
	20		
6	30	24	12
?			16

Next consider the column starting with 2 and the product of 16.
 $? \times 2 = 16$ or $? = 8$
 An 8 can be written on the row corresponding to 16.
 Continue in this way until the table is filled as shown:

×	5	4	2
4	20	16	8
6	30	24	12
8	40	32	16

2.2

2.1 - 2.2

- 22. Hint:** Find the cost of 3 screwdrivers first.
Solution: We know 2 hammers cost as much as 3 screwdrivers.
 If 1 hammer costs \$30, then 2 hammers cost \$60.
 If 3 screwdrivers cost \$60, then 1 screwdriver would cost a third of this
 $\$60 \div 3 = \20
 Four screwdrivers would cost four times this:
 $\$20 \times 4 = \80
 Four screwdrivers would cost **\$80.00**

- 23. Hint:** Use trial and error. Consider the carry overs.
Solution:
 $6 + 8 = 14$
 Write in the 4 and carry the 1 to the tens.

Tens Ask yourself: 7, what number and a carry of 1 have the sum ending in 0?
 $7 + ? + \text{carry } 1 = \underline{0}$
 $7 + 2 + 1 = 10$
 Write in the 2 and carry the 1 to the hundreds.

1	1
4	2
7	2
+ □	7
8	0
8	0

Hundreds Ask yourself: 4 plus 1 plus what number add to 8?
 $4 + ? + \text{carry } 1 = 8$
 $4 + 3 + 1 = 8$
 Write in the 3.

1	1
4	2
4	3
+ □	7
8	0
8	0

Check the sum.
 The missing digits are:

- 24. Hint:** Start on a row or column where you have 2 of the 3 numbers in the multiplication. Be systematic.
Solution: The intersection of the row starting with 5 and the column starting with 5 can be filled first.
 $5 \times 5 = 25$
 Fill in 25.
 Next consider the column starting with 5 and the product of 35.
 $? \times 5 = 35$ or $? = 7$
 Fill in 7 on the left.

×	9	5	
	27		18
?		35	
5		25	

Continue in this way until the table is filled as shown:

×	9	5	6
3	27	15	18
7	63	35	42
5	45	25	30

22. **Hint:** Start by finding the number in any circle that is resting on 2 numbered circles.

Solution: Two circles can be filled in immediately as shown.

$9 - 1 = 8$ and $9 - 9 = 0$

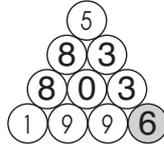
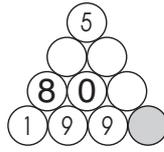
Continue in this way:

$8 - 0 = 8$

$8 - ? = 5$ or $? = 3$

$? - 0 = 3$ or $? = 3$

$9 - ? = 3$ or $? = 6$



The number **6** belongs in the shaded circle.

23. **Hint:** Find the total distance first.

Solution: The total distance between Kogan and Tingura is:

$64 \text{ km} + 122 \text{ km} + 154 \text{ km} + 60 \text{ km} = 400 \text{ km}$

If Bobby's car uses 9 litres of fuel for every 100 km, then he would use 4 times that over 400 km.

So $9 \text{ L} \times 4 = 36 \text{ L}$

Bobby uses **36 L** of fuel to travel from Kogan to Tingura.

24. **Hint:** Start with what is given. Use trial and error.

Solution: E, O, N and W must be 2, 4, 6 and 8. Given T equals the only odd digit, a carry over of 1 from the tens is needed to make that sum odd. Therefore the tens column must use the larger digits of 6 and 8.

Units

Trial: If E = 2, then $2 + 2 = 4$ (correct) $\begin{array}{r} 4 \text{ N } 2 \\ + 4 \text{ N } 2 \\ \hline \text{T W } 4 \end{array}$
Substitute E = 2 and O = 4

Tens

$N + N = W$

The possible digits are 6 and 8.

Trial: If N = 8, then $8 + 8 = 16$ and $W = 6$ (correct) $\begin{array}{r} 1 \\ 4 \text{ 8 } 2 \\ + 4 \text{ 8 } 2 \\ \hline \text{T } 6 \text{ 4} \end{array}$

Hundreds

Knowing O = 4, then T = 9

So TWO = **964** $\begin{array}{r} 1 \\ 4 \text{ 8 } 2 \\ + 4 \text{ 8 } 2 \\ \hline 9 \text{ 6 } 4 \end{array}$

23. **Hint:** Be systematic. Consider roll by roll. Draw up a table.

Solution:

Number of rolls	Starting position	Events on turn	Finishing position
1	S	6 up	9
2	9	15 down	11
3	11	17 down	2
4	2		8
5	8		14
6	14		F

It will take Jane **6** rolls of the die to move from S to F.

24. **Hint:** Start with what is given. Use trial and error.

Solution: Using R equals 8, start with the units.

Units $O + O = 8$ $\begin{array}{r} \text{T W } 4 \\ + \text{T W } 4 \\ \hline \text{F } 4 \text{ U } 8 \end{array}$
Trial: If O = 4, then $4 + 4 = 8$ (true)
Substitute O = 4 into the problem.

Thousands F = 1 because two 3-digit numbers can not add to 2000. $\begin{array}{r} \text{T W } 4 \\ + \text{T W } 4 \\ \hline \text{1 } 4 \text{ U } 8 \end{array}$
Substitute F = 1 into the problem.

Hundreds T + T = 14, so T = 7. $\begin{array}{r} 7 \text{ W } 4 \\ + 7 \text{ W } 4 \\ \hline \text{1 } 4 \text{ U } 8 \end{array}$
Substitute T = 7 into the problem.

Tens W needs to be less than 5 because we don't need a carry. Therefore W must be 2 or 3 because 1 and 4 are taken.

Trial: If W = 2, then $2 + 2 = 4$ and U = 4 (not possible, because 4 is taken)
If W = 3, then $3 + 3 = 6$ and U = 6 (correct)

So FOUR = **1468**

$\begin{array}{r} 7 \text{ 3 } 4 \\ + 7 \text{ 3 } 4 \\ \hline 1 \text{ 4 } 6 \text{ 8} \end{array}$

2.6

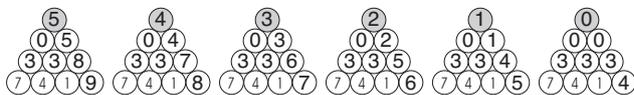
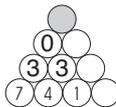
22. **Hint:** Start by finding the number in any circle that is resting on 2 numbered circles.

Solution: Two circles can be filled in immediately as shown.

$7 - 4 = 3$ and $4 - 1 = 3$

Then $3 - 3 = 0$

Try all the digits in the top circle and consider the possible results.



The largest number that can go in the shaded circle is **5**.

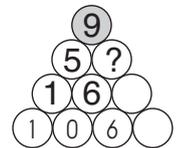
2.7

22. **Hint:** Start by finding the number in any circle that is resting on 2 numbered circles. Use trial and error.

Solution: Two circles can be filled in immediately as shown.

$1 - 0 = 1$ and $6 - 0 = 6$

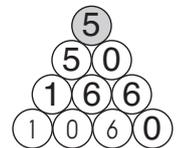
Then $6 - 1 = 5$



To end up with the largest number in the top circle, try 9 first: $5 - ? = 9$ or $? - 5 = 9$
? must be a single digit number (not possible).

9, 8, 7 and 6 don't work because they can't be written as the difference between 5 and another one-digit number.

So **5** is the largest number that can go in the shaded circle.



Fill in the circles and check your result.

2.7 (cont.)

- 23. Hint:** Use number sentences for what is given. First find the total distance Jack could travel given the amount of fuel he has.
Solution: If Jack's car uses 1 litre of fuel for every 15 km, then 30 litres of fuel would last 30 times that distance.
 $30 \times 15 \text{ km} = 450 \text{ km}$
 So Jack has 450 km worth of fuel.
 Compare this to the distances covered.
 From Dubbo it is:
 200 km to Wellington.
 $200 \text{ km} + 100 \text{ km} = 300 \text{ km}$ to Mudgee.
 $200 \text{ km} + 100 \text{ km} + 150 \text{ km} = 450 \text{ km}$ to Singleton.
 Jack would be closest to **Singleton** when he runs out of fuel.

- 24. Hint:** What three numbers add to 7? Use trial and error. Consider the condition $A < B < C$.
Solution: The condition $A < B < C$ means that A is less than B and B is less than C.
 It also means that all 3 numbers are different.
 Therefore the only possible solution is $1 + 2 + 4 = 7$
 If $A < B < C$ then $A = 1$, $B = 2$ and $C = 4$.

$$\begin{array}{r} A B C \\ B C A \\ + C A B \\ \hline 7 7 7 \end{array} \Rightarrow \begin{array}{r} 1 2 4 \\ 2 4 1 \\ + 4 1 2 \\ \hline 7 7 7 \end{array}$$

2.8

- 22. Hint:** Start by finding the number in any circle that is resting on 2 numbered circles.

Solution: Two circles can be filled in immediately as shown.

$9 - 0 = 9 \text{ and } 2 - 0 = 2$

Continue in this way:

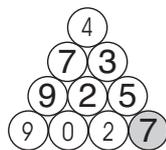
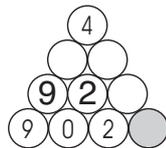
$9 - 2 = 7$

$7 - ? = 4 \text{ or } ? = 3$

$? - 2 = 3 \text{ or } ? = 5$

$? - 2 = 5 \text{ or } ? = 7$

The number **7** belongs in the shaded circle.



- 23. Hint:** Use trial and error. Start with the largest number possible, a 6. Draw up tables.
Solution: Because you want the least number of rolls start with the biggest number first.
 Try 6:

Number of rolls	Starting position	Events on turn	Finishing position
1	S	6 up	8
2	8	14 down	1
3	1		7
4	7		13
5	13	19 down	8
etc	repeating	repeating	repeating

Once you go back to 8 you know the pattern will repeat so...

Try 5:

Number of rolls	Starting position	Events on turn	Finishing position
1	S		5
2	5		10
3	10	15 down	9
4	9	14 down	1
5	1	6 up	8
6	8	13 down	1
etc	repeating	repeating	repeating

Once you go back to 1 you know the pattern will repeat. Try 4, 3, 2 and 1 in the same way till you find the best result.

In fact, the number you would choose to move from S to F in the least number of rolls is **2**.

Number of rolls	Starting position	Events on turn	Finishing position
1	S		2
2	2	4 up	10
3	10	12 up	16
4	16		18
5	18		F

- 24. Hint:** What does $E = 5$ tell you about carry overs from the units, tens and hundreds column? Use trial and error.

Solution:

Tens & Hundreds

Given that $E = 5$, there must have been a carry of 1 to have both columns of E's equalling L.

$E + E + E + \text{carry } 1 = _L$

$5 + 5 + 5 + 1 = 16$

$\text{So } L = 6$

Carry 1 to the thousands.

$$\begin{array}{r} \\ S P 5 5 D \\ S P 5 5 D \\ + S P 5 5 D \\ \hline K I 6 6 S \end{array}$$

Units

$D + D + D = _S$

D is greater than 3 because the sum is a 2-digit number.

D is not 5 or 6 because they are taken.

D is less than 7 because the sum would make a carry of 2.

$\text{So } D = 4$

$4 + 4 + 4 = 12$

$\text{and } S = 2$

$$\begin{array}{r} \\ 2 P 5 5 4 \\ 2 P 5 5 4 \\ + 2 P 5 5 4 \\ \hline K I 6 6 2 \end{array}$$

Tens of thousands

$2 + 2 + 2 \text{ ends in } K$

K can't be 6 (already taken)

So $K = 7$, with 1 carried from the thousands.

$$\begin{array}{r} \\ 2 P 5 5 4 \\ 2 P 5 5 4 \\ + 2 P 5 5 4 \\ \hline 7 I 6 6 2 \end{array}$$

Thousands $P + P + P + \text{carry } 1 = _I$

The possible digits are 0, 1, 3, 8 and 9.

The only possibility is $P = 3$, to make a carry of 1 to the tens of thousands.

$3 + 3 + 3 + 1 = 10 \text{ and } I = 0$

$$\begin{array}{r} \\ 2 3 5 5 4 \\ 2 3 5 5 4 \\ + 2 3 5 5 4 \\ \hline 7 0 6 6 2 \end{array}$$

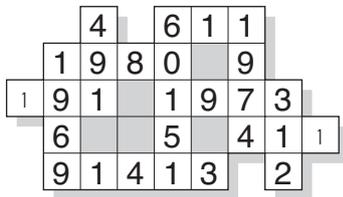
So **SPEED = 23554**

3.1

- 22. Hint:** Use trial and error. OR Halve the number.
Solution: If $97 \div 2 = 48.5$ then the two consecutive whole numbers that add to 97 must be close to 48.5. Check the sum of the whole numbers either side of this decimal number: $48 + 49 = 97$

So the two numbers are **48** and **49**.

- 23. Hint:** Establish the position of the 5-digit numbers first. Work systematically.
Solution: 91413 must be placed horizontally so that 60151 fits vertically. From here 1969 must go in the first column and 611 in the first row. 1980 must go in the second row, 491 in the second column. Fill in the remaining numbers accordingly.



- 24. Hint:** Try any reasonable guess. Use trial and error.
Solution:
 Try $\bigcirc = 8$ and $\bullet = 2$ for the 1st string.
 1st string $\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc = 8 + 8 + 2 + 2 + 2 = 22$ (true)
 2nd string $\bigcirc\bigcirc\bigcirc\bullet\bullet = 2 + 2 + 2 + ? + ? = 24$
 or $2 + 2 + 2 + 9 + 9 = 24$, so $\bullet = 9$
 Check 3rd string $\bigcirc\bigcirc\bigcirc\bullet\bullet = 8 + 8 + 2 + 9 + 9 = 26$ (false)

Try $\bigcirc = 5$ and $\bullet = 4$
 1st string $\bigcirc\bigcirc\bigcirc\bigcirc\bigcirc = 5 + 5 + 4 + 4 + 4 = 22$ (true)
 2nd string $\bigcirc\bigcirc\bigcirc\bullet\bullet = 4 + 4 + 4 + ? + ? = 24$
 or $4 + 4 + 4 + 6 + 6 = 24$, so $\bullet = 6$
 Check 3rd string $\bigcirc\bigcirc\bigcirc\bullet\bullet = 5 + 5 + 4 + 6 + 6 = 26$ (true)

So $\bigcirc\bigcirc\bigcirc\bullet\bullet = 5 + 4 + 4 + 6 + 6 = 25$

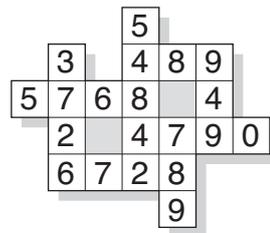
The value of the last string is **25**.

3.2

3.1 - 3.2

- 22. Hint:** Use trial and error. OR Halve the number.
Solution: The page numbers on the left and right of an open book would be consecutive numbers. If $333 \div 2 = 166.5$ then the two consecutive whole numbers that add to 333 must be close to 166.5. Check the sum of the whole numbers either side of this decimal number: $166 + 167 = 333$
 So the two page numbers Carl looked at are **166** and **167**.

- 23. Hint:** Establish the position of the 5-digit number first. Work systematically.
Solution: 54842 must be placed vertically as it is the only five-digit number. From here 489 must go in the upper right row and 949 extends vertically from its end. They are the only three-digit numbers starting with 4 and 9 respectively. 4790 connects across these already placed digits. 789 goes vertically in the only other three-digit space. Fill in the remaining numbers accordingly.



- 24. Hint:** Use trial and error. Compare strings 1 and 2. Decide which is larger, \bigcirc or \bullet .
Solution:
 The first string of beads is of greater value than the second, so it would seem that \bullet is greater than \bigcirc .
 Try $\bigcirc = 1$ and $\bullet = 4$ for the 1st and 2nd strings.
 1st string $\bigcirc\bullet\bullet\bullet\bullet = 1 + 4 + 4 + 4 + 4 = 17$ (true)
 2nd string $\bigcirc\bigcirc\bullet\bullet\bullet = 1 + 1 + 4 + 4 + 4 = 14$ (true)
 3rd string $\bigcirc\bigcirc\bigcirc\bigcirc = 1 + 1 + ? + ? + ? = 8$
 or $1 + 1 + 2 + 2 + 2 = 8$, so $\bigcirc = 2$
 So $\bigcirc\bigcirc\bigcirc\bullet\bullet = 1 + 2 + 2 + 4 + 4 = 13$
 The value of the last string is **13**.

3.3

22. **Hint:** Use trial and error. OR Divide the number by three.

Solution: If $96 \div 3 = 32$ then the three consecutive whole numbers that add to 96 must be close to 32. Check the sum of the numbers either side of 32:
 $31 + 32 + 33 = 96$

So the three numbers are **31, 32** and **33**.

23. **Hint:** Establish the number that goes in one of the most crossed positions like the top row. Use trial and error. Work systematically.

Solution: Start with the number on the top row. All digits, apart from the third digit, must be a first digit in a number. Therefore the digits in positions marked (*) must come from 2, 3, 4, 5 and 6. The only possible number is 2353.

Next look at the numbers running vertically from this number. They both start with 3.

There are 2 choices, 3875 and 3350. 3875 must run down the outside because no other number ends with a 5.

Now look at left most column. The second position must have a starting digit. The digits must come from the remaining 2, 4, 5 and 6.

The only possible number is 2680.

Fill in the remaining numbers accordingly.

2	5	*	*	5	*
6	0	0	0	3	8
8	4			5	7
0	4	8	1	0	5

24. **Hint:** Use trial and error. Compare strings 1 and 3. Decide which is larger, ○ or ●.

Solution:

The first string of beads is of greater value than the third, so it would seem that ○ is greater than ●.

Try ○ = 5 and ● = 2 in the 1st and 3rd strings.

1st string ○○○● = $5 + 5 + 5 + 5 + 2 = 22$ (true)

3rd string ○●●●● = $5 + 5 + 2 + 2 + 2 = 16$ (true)

2nd string ○○○●● = $? + ? + 5 + 2 + 2 = 21$

or $6 + 6 + 5 + 2 + 2 = 21$, so ○ = 6

So ○○○● = $6 + 5 + 5 + 5 + 2 = 23$

The value of the last string is **23**.

3.4

3.3 - 3.4

22. **Hint:** Use trial and error. OR Divide the number by four.

Solution: If $94 \div 4 = 23.5$ then the four consecutive whole numbers that add to 94 must be close to 23.5. Check the sum of the whole numbers either side of 23.5:

$$22 + 23 + 24 + 25 = 94$$

So the four numbers are **22, 23, 24** and **25**.

23. **Hint:** Establish the position of the 4-digit numbers first. Consider the options.

Solution: The four-digit numbers go horizontally in the rows marked (*). Only 1958 can go on the first row because the 8 must be a first digit in a three-digit number. This three-digit number is 819.

Accordingly, 1969 goes in the third row and 6100 goes in the fifth.

146 and 600 are now the only possibilities that will link these numbers.

Next position 727 around the 2 as it is the only option. 111 must go across from 819 as it is the only number left starting with 1.

The last 1 in this number must be part of 717. The only other choice is 419 and no number starts with 9.

Fill in the remaining numbers accordingly.

*	1	9	5	8		7	0	7
				1	1	1		2
*	1	9	6	9		7	4	7
	4		0				1	
*	6	1	0	0		3	9	9

24. **Hint:** Use trial and error. Compare strings 1 and 3. Decide which is greater, ○ or ●.

Solution:

The third string of beads is of greater value than the first, so it would seem that ○ is greater than ●.

Try ● = 4 and ○ = 5 for the 2nd string.

2nd string ●●○○ = $4 + 4 + 5 + 5 = 18$ (true)

1st string ○●●○ = $? + 4 + 4 + 5 = 16$

or $3 + 4 + 4 + 5 = 16$, so ○ = 3

Check 3rd string ○●○○ = $3 + 4 + 5 + 5 = 21$ (false)

Try ● = 3 and ○ = 6 for the 2nd string.

2nd string ●●○○ = $3 + 3 + 6 + 6 = 18$ (true)

1st string ○●●○ = $? + 3 + 3 + 6 = 16$

or $4 + 3 + 3 + 6 = 16$, so ○ = 4

Check 3rd string ○●○○ = $4 + 3 + 6 + 6 = 21$ (false)

Try next ● = 2 and ○ = 7 for the 2nd string.

2nd string ●●○○ = $2 + 2 + 7 + 7 = 18$ (true)

1st string ○●●○ = $? + 2 + 2 + 7 = 16$

or $5 + 2 + 2 + 7 = 16$, so ○ = 5

Check 3rd string ○●○○ = $5 + 2 + 7 + 7 = 21$ (true)

So ○○○○ = $5 + 5 + 5 + 7 = 22$

The value of the last string is **22**.

3.5

22. Hint: Start working from right to left.

Solution:

Units Ask yourself: What number, subtracted from 8 leaves 2?
 $8 - ? = 2$
 $8 - 6 = 2$
 Write in the 6.

$$\begin{array}{r} \square 8 \\ - 2 \square 6 \\ \hline 7 2 \end{array}$$

Tens Ask yourself: 2 subtracted from what number, leaves 7?
 $? - 2 = 7$
 $9 - 2 = 7$
 Write in the 9.

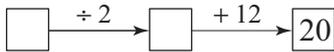
$$\begin{array}{r} \square 8 \\ - 2 \square 6 \\ \hline 7 2 \end{array}$$

The missing digits are:

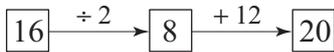
$$\begin{array}{r} \square 8 \\ - 2 \square 6 \\ \hline 7 2 \end{array}$$

23. Hint: Work backwards and do the opposite. Draw a diagram.

Solution: The result was 20 so start there.



If at the end you added 12, then do the opposite and first subtract 12.
 $20 - 12 = 8$
 Continue in this way. If you divided by 2 then multiply by 2.
 $8 \times 2 = 16$
 Double check 16 as your result by working forwards.
 $16 \div 2 = 8$
 $8 + 12 = 20$ (true)



So the original number was **16**.

24. Hint: Look at the drawn matches.

Solution:

GROUP B TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
England	2	1	1	0	6	2	4
Iran	2	1	0	1	4	6	3
USA	2	0	2	0	1	1	2
Wales	2	0	1	1	1	3	1

One possible round:

England drew with USA.

Iran won against Wales.

The remaining round:

USA drew with Wales.

England won against Iran.

Therefore Wales played **England** in their third round robin match.

3.6

3.5 - 3.6

22. Hint: Start working from right to left.

Solution:

Units Ask yourself: What number, added to 6 and 1 equals 6? There is no positive number that can make this true because the numbers add to more than 6. Therefore the result must be a 2-digit number with 6 as the last digit.
 $6 + ? + 1 = _6$ or $? + 7 = 16$
 $9 + 7 = 16$
 Write in the 9 and carry the 1 to the tens.

$$\begin{array}{r} 1 \\ 1 6 \\ \square 9 \\ + 5 1 \\ \hline 9 6 \end{array}$$

Tens Ask yourself: What number, added to 1, 5 and carry 1 equals 9?
 $1 + ? + 5 + \text{carry } 1 = 9$ or $? + 7 = 9$
 $2 + 7 = 9$
 Write in the 2.

$$\begin{array}{r} 1 \\ 1 6 \\ \square 9 \\ + 5 1 \\ \hline 9 6 \end{array}$$

The missing digits are:

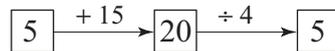
$$\begin{array}{r} 1 \\ 1 6 \\ \square 9 \\ + 5 1 \\ \hline 9 6 \end{array}$$

23. Hint: Work backwards and do the opposite. Draw a diagram.

Solution: The result was 5 so start there.



If at the end you divided by 4, then do the opposite and first multiply by 4.
 $5 \times 4 = 20$
 Continue in this way. If you added 15 then subtract 15.
 $20 - 15 = 5$
 Double check 5 as your result by working forwards.
 $5 + 15 = 20$
 $20 \div 4 = 5$ (true)



So the original number was **5**.

24. Hint: Look at the drawn match, and then at Morocco's goals.

Solution:

GROUP F TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Croatia	2	1	1	0	4	1	4
Morocco	2	1	1	0	2	0	4
Belgium	2	1	0	1	1	2	3
Canada	2	0	0	2	1	5	0

One possible round:

Croatia drew with Morocco (one draw each).

Belgium won against Canada, who doesn't have a win.

The remaining round:

Canada must have lost again against either Croatia or Morocco. As Morocco didn't receive any goals, and only scored 2, the draw with Croatia ended up with the 0:0 score. Assume Morocco scored 2:0 against Belgium. That means that Belgium won 1:0 against Canada in the previous round, which leaves Croatia winning 4:1 against Canada.

All the goals are accounted for, therefore Canada played **Morocco** in their third round robin match.

22. **Hint:** Start working from right to left.

Solution:

Units Ask yourself: What number, subtracted from 9 leaves 3?

$$9 - ? = 3$$

$$9 - 6 = 3$$

Write in the 6.

Tens Ask yourself: Five subtracted from what number, leaves 2?

$$? - 5 = 2$$

$$7 - 5 = 2$$

Write in the 7.

$$\begin{array}{r} \boxed{7} \ 9 \\ - \ 5 \ \boxed{6} \\ \hline \ 2 \ 3 \end{array}$$

The missing digits are:

23. **Hint:** Work backwards and do the opposite. Draw a diagram.

Solution: The result was 18 so start there.

$$\boxed{} \xrightarrow{\times 3} \boxed{} \xrightarrow{\div 2} \boxed{18}$$

If you divided by 2 last then do the opposite and first multiply by 2.

$$18 \times 2 = 36$$

Continue in this way.

If you multiplied by 3 then divide by 3.

$$36 \div 3 = 12$$

Double check 12 as your result by working forwards.

$$12 \times 3 = 36$$

$$36 \div 2 = 18 \text{ (true)}$$

$$\boxed{12} \xrightarrow{\times 3} \boxed{36} \xrightarrow{\div 2} \boxed{18}$$

So the original number was **12**.

24. **Hint:** Look at the drawn match, and then at Switzerland's and Brazil's goals.

Solution:

GROUP G TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Brazil	2	2	0	0	3	0	6
Switzerland	2	1	0	1	1	1	3
Cameroon	2	0	1	1	3	4	1
Serbia	2	0	1	1	3	5	1

One possible round:

Cameroon drew with Serbia (one draw each).
Brazil won against Switzerland with the score 1:0
(Switzerland only received 1 goal).

The remaining round:

Brazil must have won again against either Serbia or Cameroon with the score 2:0, while Switzerland must have a win with the score 1:0 against either Serbia or Cameroon.

By trial and error, Brazil played Serbia and Switzerland played Cameroon in this round.

Therefore Cameroon played **Brazil** in their third round robin match.



22. **Hint:** Start working from right to left.

Solution:

Units Ask yourself: What number, added to 7 and 6 equals 5? There is no positive number that can make this true because the numbers add to more than 5. Therefore the result must have 5 as the last digit.

$$7 + ? + 6 = \underline{}5 \text{ or } ? + 13 = 15$$

$$2 + 13 = 15$$

Write in the 2 and carry the 1 to the tens.

Tens Ask yourself: What number, added to 1, 3 and carry 1 equals 9?

$$1 + ? + 3 + \text{carry } 1 = 9 \text{ or } ? + 5 = 9$$

$$4 + 5 = 9$$

Write in the 4.

$$\begin{array}{r} \ 1 \ 7 \\ \ 4 \ \boxed{2} \\ + \ 3 \ 6 \\ \hline \ 9 \ 5 \end{array}$$

The missing digits are:

23. **Hint:** Work backwards and do the opposite.

Solution: The result was 12 so start there. If you divided by 3 last then do the opposite and first multiply by 3.

$$12 \times 3 = 36$$

Continue in this way.

If you multiplied by 4 then divide by 4.

$$36 \div 4 = 9$$

Double check 9 as your result by working forwards.

$$9 \times 4 = 36$$

$$36 \div 3 = 12 \text{ (true)}$$

$$\boxed{9} \xrightarrow{\times 4} \boxed{36} \xrightarrow{\div 3} \boxed{12}$$

So the original number was **9**.

24. **Hint:** Look at the drawn match, and then at Costa Rica's and Spain's goals. What do you notice?

Solution:

GROUP E TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Spain	2	1	1	0	8	1	4
Japan	2	1	0	1	2	2	3
Costa Rica	2	1	0	1	1	7	3
Germany	2	0	1	1	2	3	1

One possible round:

Spain drew with Germany (one draw each).
Costa Rica won against Japan with the score 1:0
(Costa Rica only scored 1 goal).

The remaining round:

Spain won against Costa Rica with the score 7:0, as Costa Rica received 7 goals. This leaves Spain's other score 1:1 against Germany. All their goals are now accounted for.

Japan won against Germany in this round (2:1).
Therefore Japan played **Spain** in their third round robin match.

4.1

22. Hint: Use trial and error. Remember that multiplication is done before addition.

Solution: 12 is multiplied by a number, and then 6 is added to the product. The final answer is 42.

The product must be 6 less than 42, so first subtract 6 from 42:

$42 - 6 = 36$, so the product of 12 and the unknown number is 36.

So $12 \times ? = 36$

The missing number is **3**.

23. Hint: Start with the row, column or diagonal that is complete and determine its sum. Then work with a line that has only one unknown.

Solution: Start with the diagonal.

$4 + 6 + 8 = 18$

Then choose the middle column and find the number that would make the column add to 18.

$? + 6 + 1 = 18$

So $11 + 6 + 1 = 18$

Fill in 11.

Continue in this way and place the numbers as shown.

4	11	3
5	6	7
9	1	8

24. Hint: Ask. Check a book. Use the internet.

Solution:

Hangs on a wall	c	l	o	C	k
7 days			w	E	e
3600 every hour	s	e	c	N	d
On your wrist		w	a	T	c
60 seconds	m	i	n	U	t
60 minutes	h	o	u	R	
1440 minutes		d	a	Y	

4.2



4.1 - 4.2

22. Hint: Use trial and error. Remember that division is done before subtraction.

Solution: A number is divided by 5, and then 3 is subtracted from the result. The final answer is 6.

The result of the division must be 3 more than 6, so first add 3 to 6:

$6 + 3 = 9$, so the result of the division of the unknown number by 5 is 9.

So $? \div 5 = 9$

The missing number is **45**.

23. Hint: Start with the row, column or diagonal that is complete and determine its sum. Then work with a line that has only one unknown.

Solution: Start with the diagonal.

$8 + 6 + 4 = 18$

Then choose the middle column and find the number that would make the column add to 18.

$7 + 6 + ? = 18$

So $7 + 6 + 5 = 18$

Fill in 5.

Continue in this way and place the numbers as shown.

9	5	4
1	6	11
8	7	3

24. Hint: List the factors of 288.

Solution:

The factors of 288 are:

1, 2, 3, 4, 6, 8, 9, 12, 16, 18, 24, 32, 36, 48, 72, 96, 144, 288

Possible pairs of numbers whose product is 288 are:

(1, 288), (2, 144), (3, 96), (4, 72), (6, 48), (8, 36), (9, 32)

(12, 24), (16, 18)

The only pair containing numbers between 13 and 19 is (16, 18).

The sum of Rob's and Bev's ages is:

$16 + 18 = 34$

4.3

22. **Hint:** Use trial and error. Remember that multiplication is done before addition.

Solution: 8 is multiplied by a number, and then 4 is added to the product. The final answer is 60.

The product must be 4 less than 60, so first subtract 4 from 60:

$60 - 4 = 56$, so the product of 8 and the unknown number is 56.

$$\text{So } 8 \times ? = 56$$

The missing number is **7**.

23. **Hint:** Start with the row, column or diagonal that is complete and determine its sum. Then work with a line that has only one unknown.

Solution: Start with the middle column.

$$4 + 9 + 14 = 27$$

Then choose the diagonal and find the number that would make the line add to 27.

$$12 + 9 + ? = 27$$

$$\text{So } 12 + 9 + 6 = 27$$

Fill in 6.

Continue in this way and place the numbers as shown.

12	4	11
8	9	10
7	14	6

24. **Hint:** First draw up a table to find how many books were sold in the sixth year. Then apply that amount to the equation.

Solution: A sales table would look like this, with sales doubling every year.

Year of business	Number of books sold
1	200
2	$200 \times 2 = 400$
3	$400 \times 2 = 800$
4	$800 \times 2 = 1600$
5	$1600 \times 2 = 3200$
6	$3200 \times 2 = \mathbf{6400}$

$$\begin{aligned} \text{If Yearly profit} &= \text{books sold} \times \$2 - \$1000 \\ \text{then sixth year profit} &= 6400 \times \$2 - \$1000 \\ &= \$12800 - \$1000 \\ &= \mathbf{\$11800} \end{aligned}$$

The bookshop's profit in the sixth year was **\$11 800**.

4.4



4.3 - 4.4

22. Use trial and error. Remember that division is done before subtraction.

Solution: 4 is added to the result of the division of 36 by a number. The final answer is 8.

The result of the division must be 4 less than 8, so first subtract 4 from 8:

$8 - 4 = 4$, so the result of the division of 36 by the unknown number is 4.

$$\text{So } 36 \div ? = 4$$

The missing number is **9**.

23. **Hint:** Start with the row, column or diagonal that is complete and determine its sum. Then work with a line that has only one unknown.

Solution: Start with the middle column.

$$16 + 15 + 14 = 45$$

Then choose the diagonal and find the number that would make the line add to 45.

$$12 + 15 + ? = 45$$

$$\text{So } 12 + 15 + 18 = 45$$

Fill in 18.

Continue in this way and place the numbers as shown.

12	16	17
20	15	10
13	14	18

24. **Hint:** Use trial and error. Guess numbers that work for the first picture sum and see if they are true for the second picture sum. Observe your results.

Solution:

Picture sum 1: If a book is \$10 and the palette is \$25, then $\$20 + \$25 = \$45$

Checking Picture sum 2: $\$25 + \$40 = \$65$ (false)

Observe that the cost of the second picture sum was too low. We need to increase the price of the books rather than the palette because there are more books.

Picture sum 1: If a book is \$20 and the palette is \$5, then $\$40 + \$5 = \$45$

Checking Picture sum 2: $\$5 + \$80 = \$85$ (true)

According to this diagram the price of one book is **\$20**.

$$2 \times \$20 + \$5 = \$45$$

$$\$5 + 4 \times \$20 = \$85$$

4.5

22. **Hint:** To compare each deal, either the grams or the dollars have to be the same.

Solution: Looking at the numbers it is easier to make the grams the same because doubling 250 makes 500.

Deal B) \$3 for 250 g, after doubling, becomes \$6 for 500 g.

Now compare A) \$5 for 500 g
and B) \$6 for 500 g

Deal **A** costs less.

23. **Hint:** Use trial and error. Guess for the first case and check your trial in the second case.

Solution: Observe that the answer to the first sum has 2 digits that are the same.

☒ must be 8 or greater to create a two digit answer of the same digit.

Try ☒ = 8 and ☑ = 1

$3 + \text{☒} = \text{☑☑}$ becomes $3 + 8 = 11$ (true)

Check into ☒ × ☐ = ☑☐

$8 \times ? = 1_$

Only 8 multiplied by 2 can produce a two-digit answer starting with 1.

so $8 \times 2 = 16$

The solution to the cipher is:

☑ = 1, ☒ = 8, ☐ = 2 and ☐ = 6

24. **Hint:** Work from the right, first completing what is given.

Solution:

Units $6 \times 9 = 54$, so write in the 4 and carry the 5 to the tens.

Tens Then consider that you have 5 as the answer in the tens column. What digit, when multiplied by 6 and having a carry of 5 added, would result in 5 as the last digit?

$$6 \times ? + 5 = _5$$

The multiplication part ($6 \times ?$) must have zero as the last digit because adding 5 gives a 5 last digit.

Only 6 multiplied by 5 is possible as

$$6 \times 5 = 30$$

Write in the 5 and complete the multiplication.

$$\begin{array}{r} ^3 ^5 \\ 1 \text{ ☐ } 9 \\ \times 6 \\ \hline \text{☐ } 5 \text{ ☐ } \end{array}$$

4.6

4.5 - 4.6

22. **Hint:** To compare each deal, either the metres or the dollars have to be the same.

Solution: Looking at the numbers it is easier to make the metres the same because 3 times 15 m is 45 m.

Deal A) \$1.50 for 15 m, by multiplying by 3, can be considered as \$4.50 for 45 m.

Now compare A) \$4.50 for 45 m
and B) \$5 for 45 m

Deal **A** costs less.

23. **Hint:** Find the relationship between their ages using the simplest example. Use trial and error.
OR Draw up a table.

Solution: Only consider multiples of 12 because there are 12 months in a year.

If Tony was 1 year or 12 months then Grandfather would be 12 years and their combined ages would be 13 years.

If Tony was 2 years or 24 months then Grandfather would be 24 years and their combined ages would be 26 years.

A table reveals:

Tony's age (years)	Tony's age (months)	Grandfather's age (years)	Combined age (years)
1	12	12	$1 + 12 = 13$
2	24	24	$2 + 24 = 26$
3	36	36	$3 + 36 = 39$
4	48	48	$4 + 48 = 52$
5	60	60	$5 + 60 = 65$
6	72	72	$6 + 72 = 78$

Tony will be **6** years old when their combined ages are 78.

24. **Hint:** Work from the right, first completing what is given.

Solution:

Units $3 \times 6 = 18$, so write in the 8 and carry the 1 to the tens.

Tens Then consider that you have 3 as the answer in the tens column. What digit, when multiplied by 3 and having a carry of 1 added, would result in 3 as the last digit?

$$3 \times ? + 1 = _3$$

The multiplication part ($3 \times ?$) must have 2 as the last digit because adding 1 gives a 3 last digit.

Only 3 multiplied by 4 is possible as

$$3 \times 4 = 12$$

Write in the 4 and complete the multiplication.

$$\begin{array}{r} ^1 ^1 \\ 2 \text{ ☐ } 6 \\ \times 3 \\ \hline \text{☐ } 3 \text{ ☐ } \end{array}$$

4.7

22. **Hint:** To compare each deal, either the litres or the dollars have to be the same.
Solution: Looking at the numbers it is easier to make the litres the same because 4 times 1 L is 4 L.

Deal B) \$8.50 for 1 L, by multiplying by 4, can be considered as \$34 for 4 L.

Now compare A) \$32 for 4 L
 and B) \$34 for 4 L

Deal **A** costs less.

23. **Hint:** Consider what each method reveals. Use the clue that two of the spheres are identical in weight.
Solution: Method 1 indicates that spheres A and B together are heavier than sphere C. It doesn't tell which is different.

Method 2 indicates that spheres A and B weigh the same and given that 'the third is different', then C must be different. This method is revealing.

Placing all 3 spheres together on side of the balance as in Method C just tells us that together they have weight! So method **2** reveals that sphere **C** is different.

24. **Hint:** Work from the right, first completing what is given.

Solution:

Units $8 \times 4 = 32$, so write in the 2 and carry the 3.

Tens Then consider that you have 9 as the answer in the tens column. What digit, when multiplied by 8 and having a carry of 3 added, would result in 9 as the last digit?

$$8 \times ? + 3 = _9$$

The multiplication part ($8 \times ?$) must have 6 as the last digit because adding 3 gives a 9 last digit.

Only 8 multiplied by 2 and 8 multiplied by 7 are possible as $8 \times 2 = 16$ and $8 \times 7 = 56$

Try 2:

Write in the 2 and check the remaining multiplication.

The solution is:

$$\begin{array}{r} \\ 1 4 \\ \times \\ \hline 9 2 \end{array}$$

4.8

4.7 - 4.8

22. **Hint:** Convert the larger unit to the smaller unit. To compare each deal, either the millilitres or the cents have to be the same.

Solution: Looking at the numbers it is easier to make the millilitres the same. First however you need to convert the litres to millilitres in B).

If 1 L is 1000 millilitres then 2 L is 2000 millilitres.

So deal B) becomes \$2 for 2000 mL or 200¢ for 2000 mL and, by dividing by 4, can be considered as 50¢ for 500 mL.

Now compare A) 75¢ for 500 mL
 and B) 50¢ for 500 mL

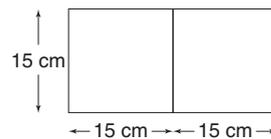
Deal **B** costs less.

23. **Hint:** Draw a diagram.

Solution: By definition all 4 sides of a square are the same length. If a square has a perimeter of 60 cm then each side is 15 cm long.

$$60 \div 4 = 15 \text{ cm}$$

The rectangle of 2 such squares side by side would look like this:



The perimeter of the rectangle is $15 + 15 + 15 + 15 + 15 + 15 = 90$ cm.

24. **Hint:** Complete what is given and multiply by 5. Then use trial and error to find the tens value.

Solution:

$$\begin{array}{r} \\ \times \\ \hline \\ 0 \\ \hline 9 \end{array} \qquad \begin{array}{r} \\ \times \\ \hline 1 \\ 0 \\ \hline 9 \end{array}$$

What you know:

The missing digit in the multiplication is in the tens place. Estimate its value by rounding numbers: 27 becomes 25 and 135 becomes 100.

Consider:

What ten, when multiplied by 25 results in approximately 800 (the result of 900 minus 100)?

Investigate: $10 \times 25 = 250$
 $20 \times 25 = 500$
 $30 \times 25 = 750$

Try 30.

Check the result.

The missing digits in the multiplication are:

$$\begin{array}{r} \\ \times \\ \hline 1 \\ 8 0 \\ \hline 9 \end{array}$$

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 - 18



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	9	15	14	11	12	16	13	18	17	10
- 7										

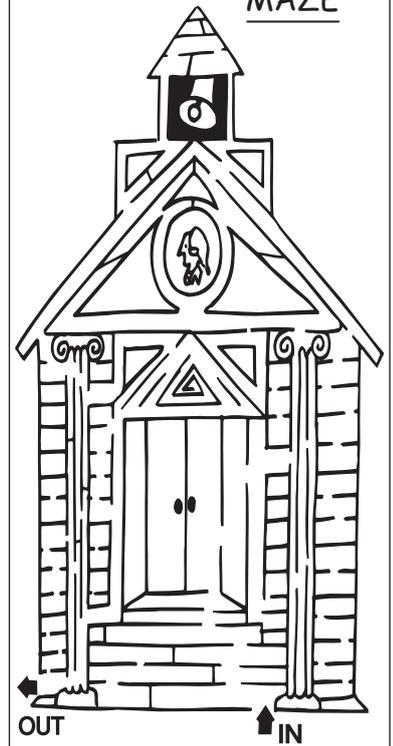
3. [× Whole Numbers to 10]

	3	6	9	1	7	2	10	5	4	8
× 7										

4. [÷ Whole Numbers to 10]

	24	6	42	54	12	18	60	30	36	48
÷ 6										

MAZE



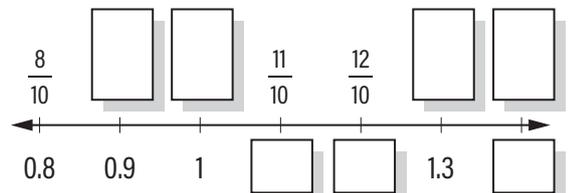
5. [Large Number +]

$$\begin{array}{r} 4523 \\ + 1034 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 87 \\ \times 3 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]
Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 748 \\ - 222 \\ \hline \end{array}$$

9. [Decimals]
Write as a decimal:
three and forty-one hundredths.

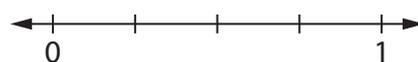
12. [Place Value]
Which digit in 345.1 is in the same place as the 8 in 6.87?

13. [Operations]
 $5 \times 17 = \square \times 5$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 71 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]
Mark $\frac{1}{2}$ with a circle and $\frac{1}{4}$ with a cross on the number line.



14. [Exploring Numbers]
Write in numerals:
five thousand and fifty-five

15. [Number Patterns / Equations]
27, 36, 45, 54, 63, ,

16. [Units of Measurement]
How many of these objects are likely to have a mass greater than 1 kilogram?

- A house brick
- A watermelon
- A large dog
- A pair of scissors

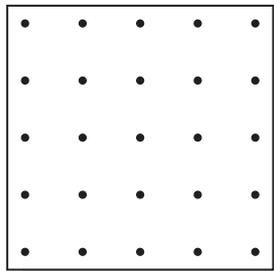
17. [Measuring]
Estimate the length of the safety pin.



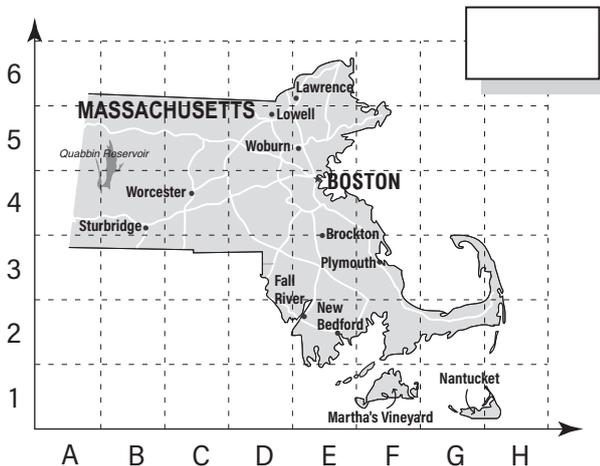
18. [Perimeter / Area]
Using a ruler, measure the side length of the square in millimetres. What is the perimeter of the square?



19. [Shapes]
Draw a rhombus on the dotted grid. Make sure that all the vertices are on a dot.

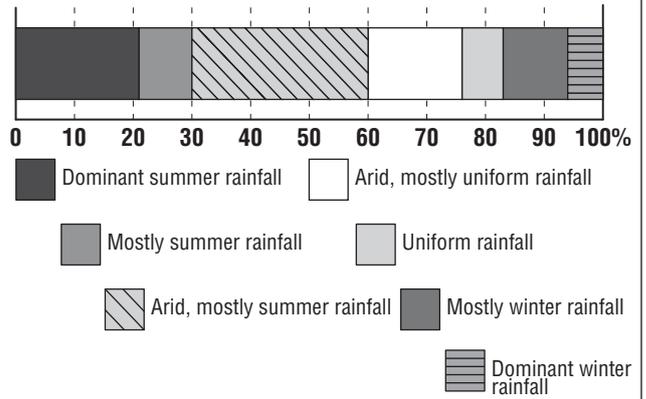


20. [Location / Transformation]
Which grid reference describes the location of Martha's Vineyard?



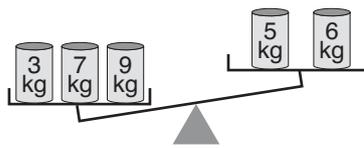
21. [Statistics / Probability]
Which climatic zone covers more than the dominant summer rainfall zone?

Australian Climatic Zones
according to rainfall



22. [Problem Solving 1]
If it takes Nadira six minutes to saw a log into two pieces, how long would it take her to cut a log into three pieces?

23. [Problem Solving 2]
Which two weights need to be swapped to balance the scales?



24. [Problem Solving 3]
Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r}
 7 \square 6 \\
 + \square 1 \square \\
 \hline
 9 \square 0
 \end{array}$$



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	17	14	10	19	18	16	12	13	11	15
- 5										

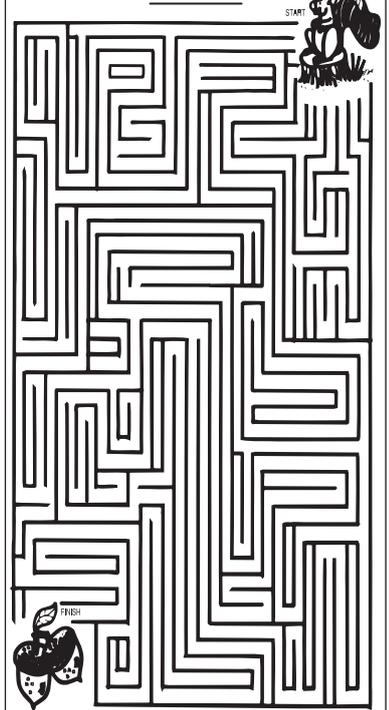
3. [× Whole Numbers to 10]

	10	6	4	5	2	1	7	3	8	9
× 4										

4. [÷ Whole Numbers to 10]

	35	14	7	70	21	49	42	28	63	56
÷ 7										

MAZE



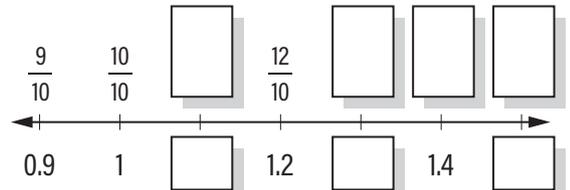
5. [Large Number +]

$$\begin{array}{r} 4823 \\ + 1054 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 75 \\ \times 8 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]
Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 964 \\ - 423 \\ \hline \end{array}$$

9. [Decimals]
Write as a decimal:
two and seventy-eight hundredths.

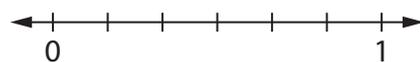
12. [Place Value]
Which digit in 291.3 is in the same place as the 5 in 9.54?

13. [Operations]
 × 2 = 2 × 14

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 49 \\ \times 1000 \\ \hline \end{array}$$

10. [Fractions]
Mark $\frac{1}{3}$ with a star
and $\frac{1}{2}$ with an arrow
on the number line.

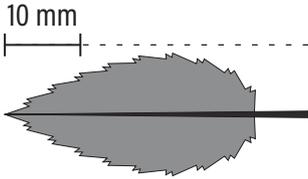


14. [Exploring Numbers]
Write in numerals:
two thousand and twenty-two

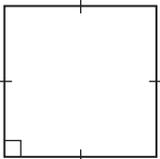
15. [Number Patterns / Equations]
58, 50, 42, 34, 26,

16. [Units of Measurement]
 How many of these objects are likely to have a capacity greater than 1 litre?
 An egg cup
 A tablespoon
 The bill of a pelican
 The petrol tank of a car

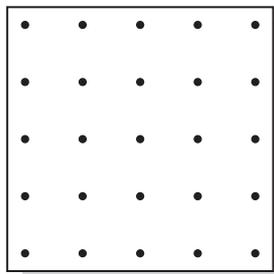
17. [Measuring]
 Estimate the length of the leaf.



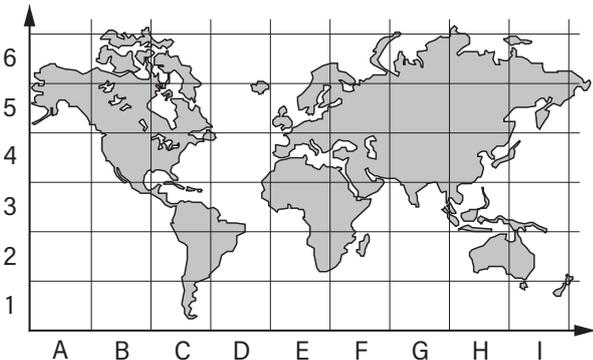
18. [Perimeter / Area]
 Using a ruler, measure the side lengths of the square in centimetres. What is the perimeter of the square?



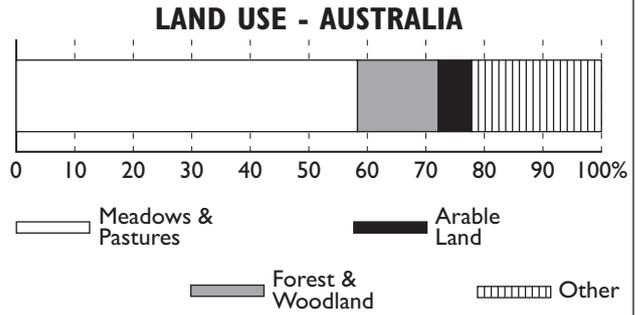
19. [Shapes]
 Draw an obtuse-angled triangle with two equal sides on the dotted grid. Make sure that all the vertices are on a dot.



20. [Location / Transformation]
 A part of which continent is shown at C2 on this map?

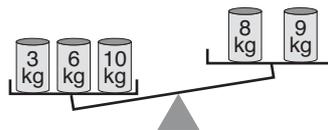


21. [Statistics / Probability]
 Which type of land use covers more than half of Australia?



22. [Problem Solving 1]
 Juliet takes an hour to plant a creeper between each of the 3 fence posts on the left of her driveway. How long will it take to plant creepers between the 5 posts on the other side of the driveway?

23. [Problem Solving 2]
 Which two weights need to be swapped to balance the scales?



24. [Problem Solving 3]
 Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r}
 \square 0 \square \\
 + 1 \square 4 \\
 \hline
 \square 8 \square
 \end{array}$$



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	5	3	2	4	10	1	8	9	6	7
× 5										

4. [÷ Whole Numbers to 10]

	45	63	72	54	90	81	18	9	36	27
÷ 9										

DECODE THESE INITIALS

Each statement contains the initials of missing words. Complete the words so that the statements make sense.

e.g. N. in an O. = 8
8 Notes in an Octave.

Try your skill on these:

S. in a M. = 60
M. in a S. = 3
T. with A. B. = 40
L. on a S. = 8
V. in the A. = 5

Answer: Seconds, Minute / Months, Season / Thieves, All, Baba / Legs, Spider / Vowels, Alphabet.

5. [Large Number +]

$$\begin{array}{r} 1312 \\ 1142 \\ + 2219 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 2 \overline{) 6824} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{9}{100}$ as a decimal.

12. [Place Value]

What is the value of the digit 1 in the number 62.193?

6. [Large Number -]

$$\begin{array}{r} 93 \\ - 26 \\ \hline \end{array}$$

9. [Decimals]

$$\$7.65 + \$1.70 =$$

13. [Operations]

Which expression equals 9?

- A $1 \div 9$
- B $1 - 9$
- C 1×9

7. [Powers of 10 ×, ÷]

$$470 \div 10 =$$

10. [Fractions]

Shade the fraction bars to show $\frac{1}{2}$ and $\frac{3}{8}$. Which fraction is smaller?

14. [Exploring Numbers]

Write the number 9022 in words.

15. [Number Patterns / Equations]

$$\square + 19 = 28$$

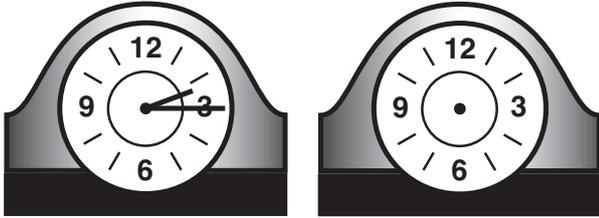
16. [Units of Measurement]

Convert to centimetres:

60 mm = cm

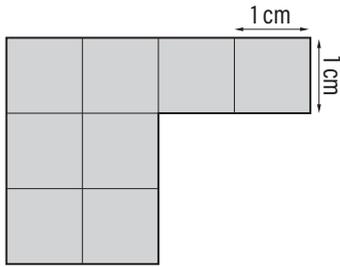
17. [Measuring]

Draw hands on the second clock to show the time 2 hours and 20 minutes later than the first.



18. [Perimeter / Area]

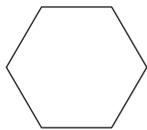
Find the area of this shape.



cm²

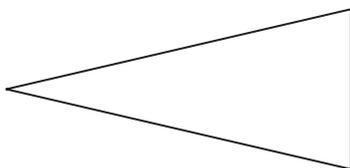
19. [Shapes]

How many sides does a hexagon have?



20. [Location / Transformation]

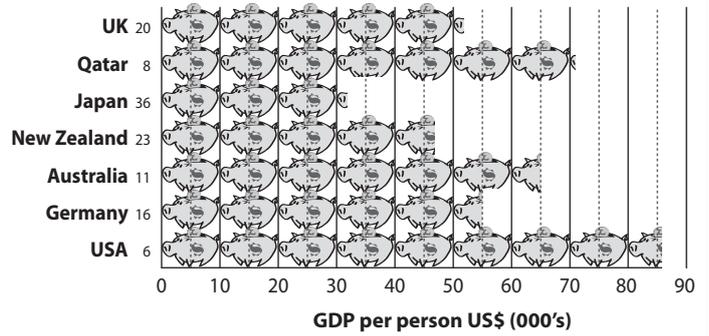
Draw the line(s) of symmetry through this isosceles triangle. How many lines of symmetry does this triangle have?



21. [Statistics / Probability]

How many countries had a Gross Domestic Product (GDP) averaging more than US\$60 000 per person?

NATIONAL WEALTH OF SELECTED COUNTRIES - 2024



22. [Problem Solving 1]

Draw the missing house.

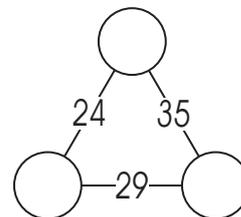


23. [Problem Solving 2]

A seat factory makes 4-legged chairs and 3-legged stools. Yesterday they made 14 seats. If the seats had a total of 51 legs, how many stools did they produce?

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	16	11	20	12	13	15	19	18	17	14
- 9										

3. [× Whole Numbers to 10]

	4	8	5	7	1	6	2	3	10	9
× 3										

4. [÷ Whole Numbers to 10]

	12	54	18	36	48	24	6	42	30	60
÷ 6										

DECODE THESE INITIALS

Each statement contains the initials of missing words. Complete the words so that the statements make sense.

e.g. R. pull S. S. = 9
9 Reindeer pull Santa's Sleigh.

Try your skill on these:

- B. D. = 13
- N. on a C. F. = 12
- D. for P. G. in M. = 200
- D. in A. = 30
- S. of a H. = 6

Answer: Baker's, Dozen / Numbers, Clock, Face / Dollars, Passing, Go, Monopoly / Days, April / Sides, Hexagon.

5. [Large Number +]

$$\begin{array}{r} 1422 \\ 2133 \\ + 1216 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 3 \overline{) 9363} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{52}{100}$ as a decimal.

6. [Large Number -]

$$\begin{array}{r} 82 \\ - 48 \\ \hline \end{array}$$

9. [Decimals]

$$\$5.55 + \$2.90 =$$

12. [Place Value]

What is the value of the digit 9 in the number 1.296?

13. [Operations]

Which expression equals 7?

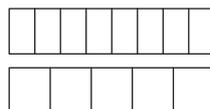
- A 1×7
- B $1 + 7$
- C $1 \div 7$

7. [Powers of 10 ×, ÷]

$$530 \div 10 =$$

10. [Fractions]

Shade the fraction bars to show $\frac{5}{8}$ and $\frac{3}{5}$.
Which fraction is greater?



14. [Exploring Numbers]

Write the number 6057 in words.

15. [Number Patterns / Equations]

$$18 + \square = 26$$

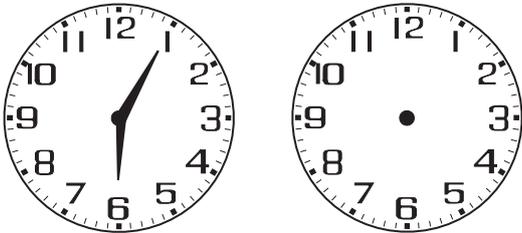
16. [Units of Measurement]

Convert to metres:

1.5 km = m

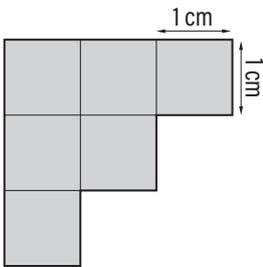
17. [Measuring]

Draw hands on the second clock to show the time 3 hours and 30 minutes later than the first.



18. [Perimeter / Area]

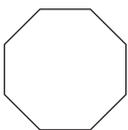
Find the area of this shape.



cm²

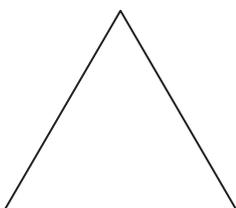
19. [Shapes]

How many interior angles does an octagon have?



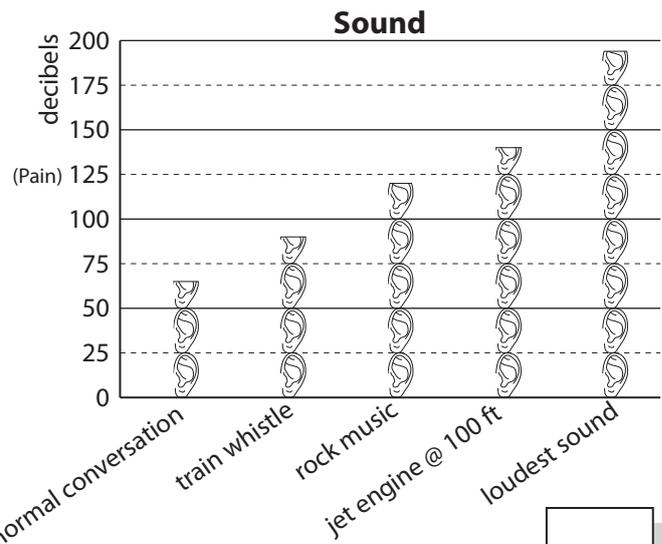
20. [Location / Transformation]

Draw the line(s) of symmetry through this equilateral triangle. How many lines of symmetry does this triangle have?



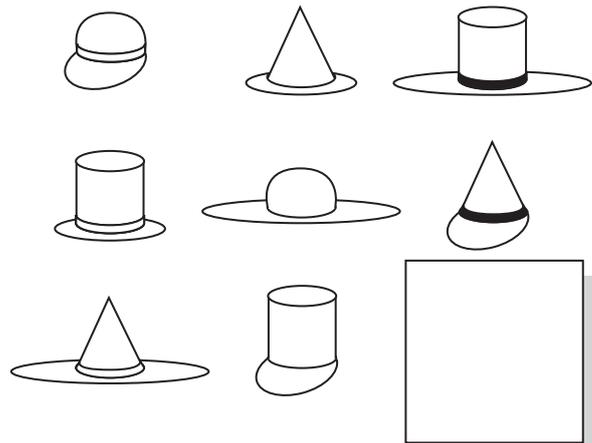
21. [Statistics / Probability]

Pain is felt once a sound goes beyond 125 decibels. How many of these sounds would hurt your ears?



22. [Problem Solving 1]

Draw the missing hat.

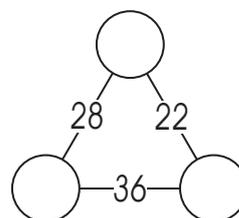


23. [Problem Solving 2]

There are 86 legs on the 38 animals on the farm. Each animal has either 2 legs or 4 legs. How many 2-legged animals are there?

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	12	16	9	17	14	13	10	11	18	15
- 8										

3. [× Whole Numbers to 10]

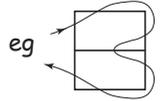
	9	7	8	6	5	3	4	1	2	10
× 6										

4. [÷ Whole Numbers to 10]

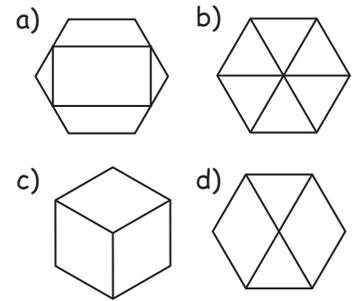
	10	4	18	20	2	12	14	8	16	6
÷ 2										

FIND A PATH

Try to draw a single path which cuts through each of the line segments in the sketches below only once.



Which sketch below has no such path?



Answer: b)

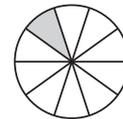
5. [Large Number +]

$$\begin{array}{r} 13 \\ 34 \\ + 16 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 903 \\ \times 9 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]
Write 10% as a fraction in simplest form.



6. [Large Number -]

$$\begin{array}{r} 500 \\ - 7 \\ \hline \end{array}$$

9. [Decimals]
How much change will you receive from \$5.00 if you spend \$3.35?

12. [Place Value]
In which number does the digit 3 have a smaller value?

- A 43.92
B 42.39

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 868 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]
Complete to form equivalent fractions:

$$\frac{2}{3} = \frac{\square}{12}$$

13. [Operations]
 $16 - 4 + 4 =$

14. [Exploring Numbers]
Which list has only factors of 20?

- A 1, 2, 4, 5
B 1, 2, 3, 5

15. [Number Patterns / Equations]

2, 8, 32, 128, ,

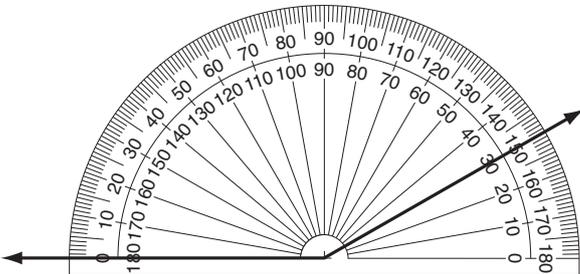
16. [Units of Measurement]

Convert to kilograms:

8000 g = kg

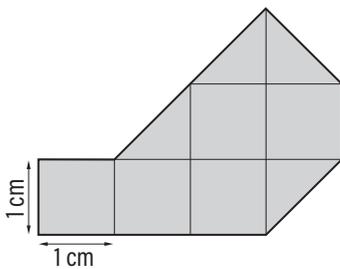
17. [Measuring]

Use the protractor to measure the size of this angle.



18. [Perimeter / Area]

Find the area of this shape.



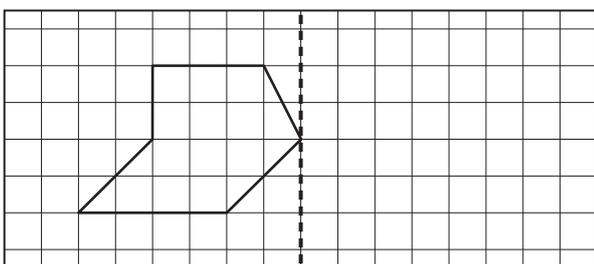
19. [Shapes]

I am a quadrilateral. I have two pairs of equal sides. My diagonals cross at right angles. I have only one line of symmetry. What shape am I?

- A kite
- B parallelogram
- C rhombus

20. [Location / Transformation]

Redraw this polygon after reflecting it in the dotted line.



21. [Statistics / Probability]

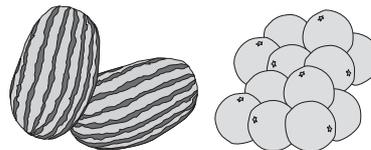
What is the height in metres of the Mutarazi Falls?

Waterfall	Heights of Major Waterfalls	
	feet	metres
ANGEL FALLS (Venezuela)	3212	979
TUGELA FALLS (South Africa)	2800	850
UTIGORD FALLS (Norway)	2625	800
MONGE FALLS (Norway)	2540	774
MUTARAZI FALLS (Zimbabwe)	2499	762
YOSEMITE FALLS (U.S.A.)	2425	739

 m

22. [Problem Solving 1]

Twelve oranges cost as much as two watermelons. How much are six oranges if one watermelon costs \$2.50?



23. [Problem Solving 2]

Fill in the missing digits in the sum.

$$\begin{array}{r}
 159 \\
 + \square 5 \square \\
 \hline
 9 \square 1
 \end{array}$$

24. [Problem Solving 3]

Complete the multiplication table.

×	8	3	
4			
	56		35
		6	





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	12	10	8	13	14	15	16	11	9	7
- 3										

3. [× Whole Numbers to 10]

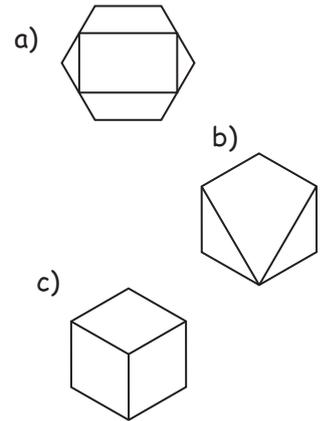
	4	1	3	5	7	2	8	9	6	10
× 9										

4. [÷ Whole Numbers to 10]

	16	4	12	20	28	8	32	36	24	40
÷ 4										

JUST A TRACE

Which of these objects **cannot** be traced over, without lifting your pen? (Note: You may not trace over the same path twice.)



Answer: c)

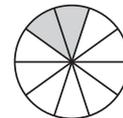
5. [Large Number +]

$$\begin{array}{r} 357 \\ + 429 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 605 \\ \times 7 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]
Write 20% as a fraction in simplest form.



6. [Large Number -]

$$\begin{array}{r} 600 \\ - 4 \\ \hline \end{array}$$

9. [Decimals]
How much change will you receive from \$6.00 if you spend \$5.55?

 \$

12. [Place Value]
In which number does the digit 1 have a greater value?

- A 8.14
B 54.716

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 357 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]
Complete to form equivalent fractions:

$$\frac{3}{4} = \frac{9}{\square}$$

13. [Operations]
 $11 + 9 - 9 =$

14. [Exploring Numbers]
Which list has only factors of 24?

- A 1, 2, 3, 5, 6
B 1, 3, 4, 8, 12

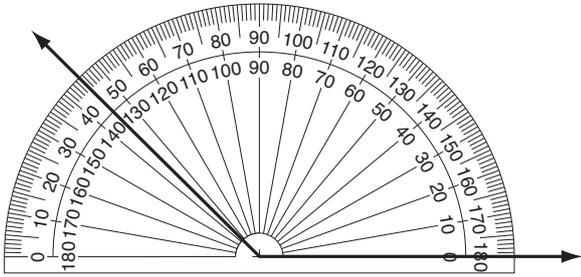
15. [Number Patterns / Equations]

10, 30, 90, 270, ,

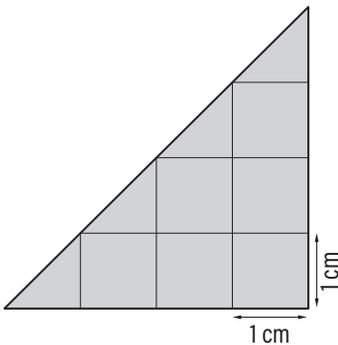
16. [Units of Measurement]
Convert to tonnes:

$$4000 \text{ kg} = \boxed{} \text{ t}$$

17. [Measuring]
Use the protractor to measure the size of this angle.



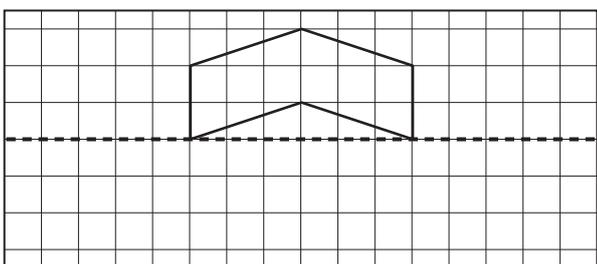
18. [Perimeter / Area]
Find the area of this triangle.


 cm^2

19. [Shapes]
I am a quadrilateral. I have all sides equal in length. I have only two lines of symmetry. What shape am I?

- A rectangle
B rhombus
C square

20. [Location / Transformation]
Redraw this polygon after reflecting it in the dotted line.



21. [Statistics / Probability]
How far is it by road from Madrid to Paris?

EUROPEAN ROAD DISTANCES

	Athens	Barcelona	Copenhagen	Lisbon	Madrid	Milan	Munich	Paris	Vienna
Barcelona	3133								
Copenhagen	3276	2218							
Lisbon	4532	1304	2971						
Madrid	3949	636	2498	668					
Milan	2282	1014	1537	2250	1724				
Munich	2179	1365	1104	2507	2010	331			
Paris	3000	1033	1176	1799	1273	856	821		
Vienna	1991	1802	1455	2935	2409	898	428	1249	

Road distances between cities are in kilometres.

 km

22. [Problem Solving 1]
Eight books cost as much as two shirts. How much are six books if one shirt costs \$44?


 \$

23. [Problem Solving 2]
Fill in the missing digits in the sum.

$$\begin{array}{r} \square 1 \\ 2 \square \\ + 13 \\ \hline 80 \end{array}$$

24. [Problem Solving 3]
Complete the multiplication table.

×	2	9	
	10		20
3			
		54	





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	11	12	19	13	17	14	16	18	10	15
- 9										

3. [× Whole Numbers to 10]

	7	1	4	2	9	8	5	6	3	10
× 10										

4. [÷ Whole Numbers to 10]

	9	72	81	27	63	54	45	90	36	18
÷ 9										

HIDDEN MEANINGS

man
board

tijustme

24 hours ALL work

Answer:
Man overboard
Just in time
All in a day's work

5. [Large Number +]

$$\begin{array}{r} 4192 \\ + 5052 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 5 \overline{) 255} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number

$$5 \frac{7}{10} \text{ as a decimal.}$$

6. [Large Number -]

$$\begin{array}{r} 800 \\ - 43 \\ \hline \end{array}$$

9. [Decimals]

$$\begin{array}{r} 1.44 \\ 0.73 \\ + 2.88 \\ \hline \end{array}$$

12. [Place Value]

$$1456.56 < 1456.65$$

True or false?

7. [Powers of 10 ×, ÷]

$$6400 \div 100 =$$

10. [Fractions]
Simplify: $\frac{4}{8}$

15. [Number Patterns / Equations]

$$8 \times \square = 24$$

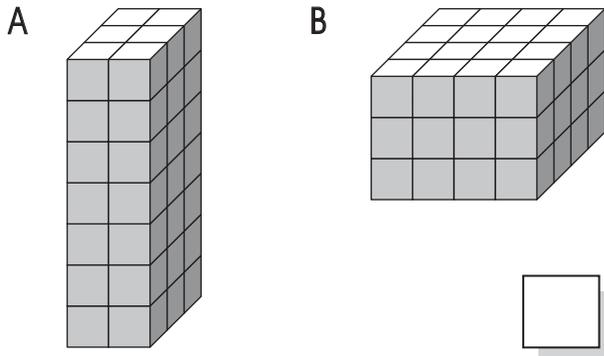
16. [Units of Measurement]

Convert to millilitres:

7.5 L = mL

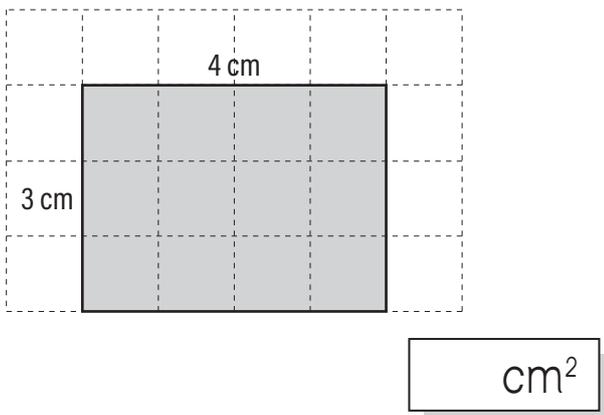
17. [Measuring]

Which prism has the greater volume?



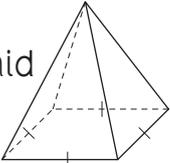
18. [Perimeter / Area]

Find the area of the shaded rectangle.



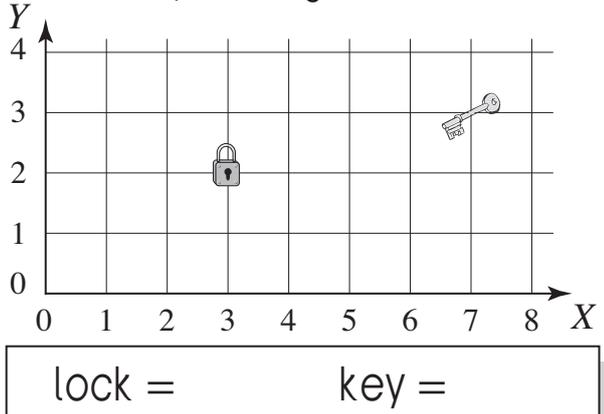
19. [Shapes]

What is the name of this shape?

- A triangular prism
 - B rectangular pyramid
 - C square pyramid
 - D square prism
- 
-

20. [Location / Transformation]

What are the coordinates of the lock and the key on the grid?



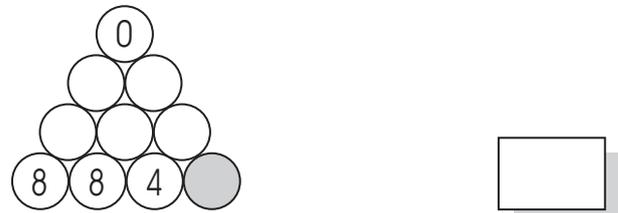
21. [Statistics / Probability]

You have 20 batteries and 6 do not work. What is the chance that the first battery you choose will work?

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

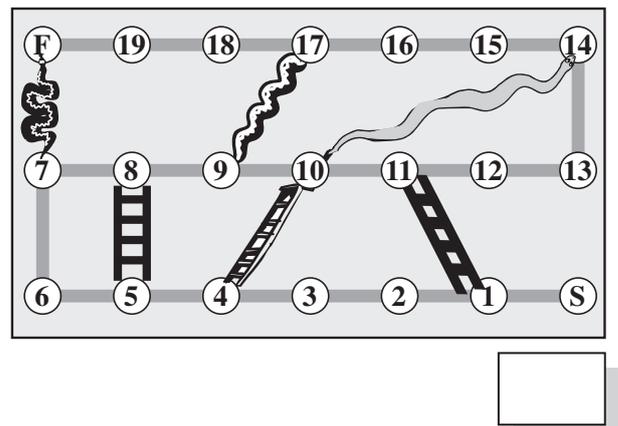
22. [Problem Solving 1]

A single digit number belongs in each circle and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



23. [Problem Solving 2]

Starting at S, Helen's first three rolls of the die are five, five and four. What number is she now on?



24. [Problem Solving 3]

Each letter represents a different digit from 0 to 9. If E = 7, what number does BET stand for?

$$\begin{array}{r} \text{BET} \\ + \text{BET} \\ \hline \text{CENT} \end{array}$$

BET =



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

	13	8	10	7	14	15	6	11	12	9
- 4										

3. [× Whole Numbers to 10]

	3	10	7	1	4	2	9	8	5	6
× 8										

4. [÷ Whole Numbers to 10]

	70	21	14	49	35	56	28	7	63	42
÷ 7										

HIDDEN MEANINGS



Answer:
Forever on my mind
Square dance
Half an hour

5. [Large Number +]

$$\begin{array}{r} 4292 \\ + 5036 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 6 \overline{) 426} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number

$$3\frac{75}{100} \text{ as a decimal.}$$

12. [Place Value]

$$0.234 > 0.243$$

True or false?

6. [Large Number -]

$$\begin{array}{r} 700 \\ - 54 \\ \hline \end{array}$$

9. [Decimals]

$$\begin{array}{r} 1.75 \\ + 5.45 \\ + 3.95 \\ \hline \end{array}$$

13. [Operations]

$$6 \times 8 \div 4 =$$

14. [Exploring Numbers]

Which number is a prime?

28, 29 or 30

7. [Powers of 10 ×, ÷]

$$5200 \div 100 =$$

10. [Fractions]

Simplify:

$$\frac{10}{50}$$

15. [Number Patterns / Equations]

$$\square \times 9 = 54$$

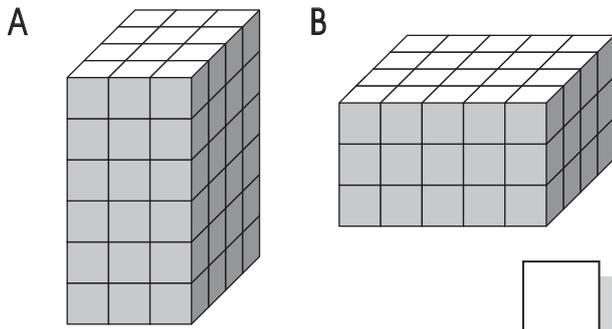
16. [Units of Measurement]

Convert to millilitres:

1.5 L = mL

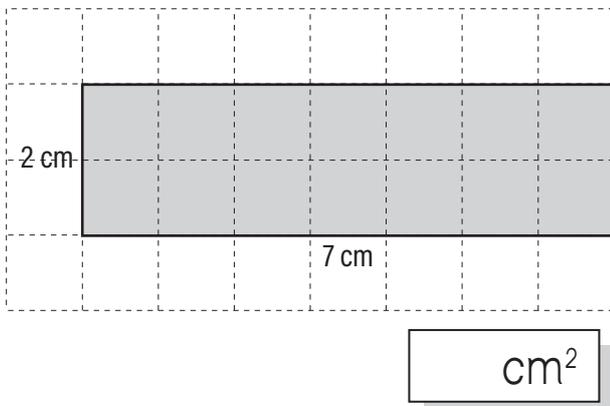
17. [Measuring]

Which prism has the lesser volume?



18. [Perimeter / Area]

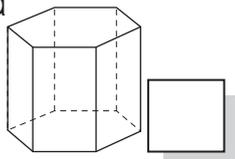
Find the area of the shaded rectangle.



19. [Shapes]

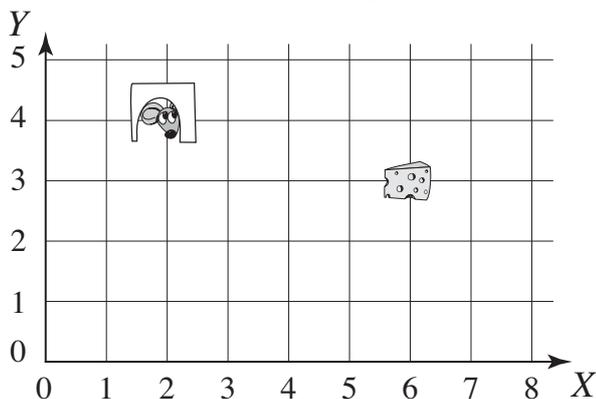
What is the name of this shape?

- A rectangular pyramid
- B hexagonal prism
- C hexagonal pyramid
- D rectangular prism



20. [Location / Transformation]

What are the coordinates of the mouse and the cheese on the grid?



mouse = cheese =

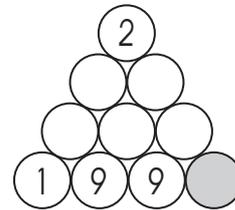
21. [Statistics / Probability]

John has 3 red, 4 blue and 6 green paint cans in his shed. What is the chance that the first can he checks will be red?

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

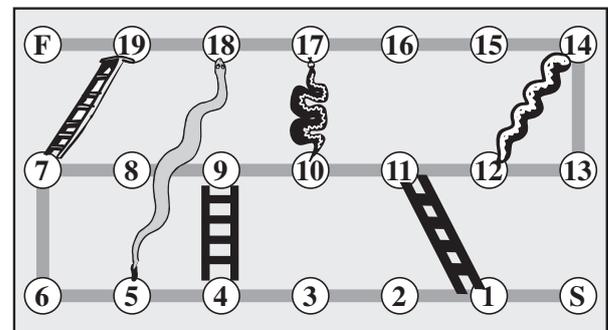
22. [Problem Solving 1]

A single digit number belongs in each circle and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



23. [Problem Solving 2]

Starting at S, Kurt's first three rolls of the die are one, three and five. What number is he now on?



24. [Problem Solving 3]

Each letter represents a different digit from 0 to 9. What number does JOANA stand for?

$$\begin{array}{r} \text{JOANA} \\ \text{OANA} \\ + \text{ANA} \\ \hline 15755 \end{array}$$

JOANA =



Name:

1. [+ Whole Numbers to 10]

	9	15	8	21	13	4	20	2	26	7
+ 10										

2. [- Whole Numbers to 10]

	8	7	13	9	14	15	16	12	10	11
- 6										

3. [× Whole Numbers to 10]

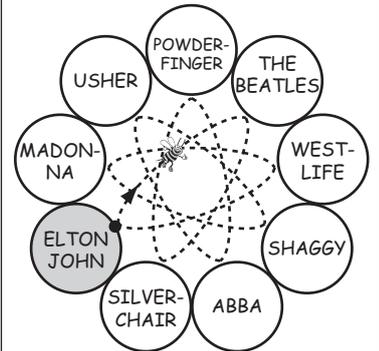
	6	2	1	3	10	4	7	8	5	9
× 4										

4. [÷ Whole Numbers to 10]

	21	9	3	6	12	30	15	18	27	24
÷ 3										

SPELLING BEE

Starting on Elton John, follow the Bee's path as you spell the name of one of the pop groups shown, one letter per bounce. The clever Bee will end up on the chosen pop group.



5. [Large Number +]

$$\begin{array}{r} 1814 \\ 734 \\ + 2420 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 136 \\ \times 7 \\ \hline \end{array}$$

12. [Place Value]

Place in order from largest to smallest:

2.6, 2.62, 6.2, 6.26, 2.66

6. [Large Number -]

$$\begin{array}{r} 643 \\ - 268 \\ \hline \end{array}$$

9. [Decimals]

$$5 - 0.43 =$$

13. [Operations]

$$9 - 6 \div 3 =$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 30 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]

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

14. [Exploring Numbers]

Complete the missing factor in the prime factorisation of 30:

$$30 = 2 \times 3 \times \square$$

11. [Decimals / Fractions / Percentages]

Write 50% as a decimal.

15. [Number Patterns / Equations]

$$\square \div 8 = 4$$

16. [Units of Measurement]
Convert to hours:

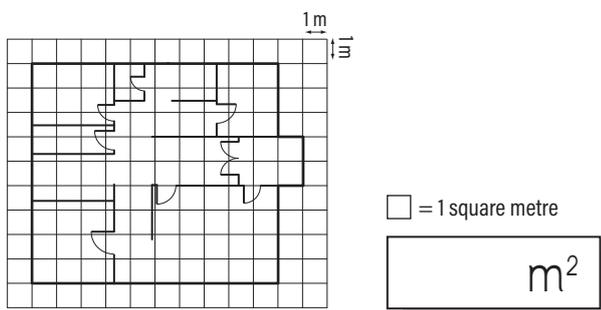
480 min = h

17. [Measuring]

The soccer final began at 2:05 am and finished an hour and fifty minutes later. At what time did the soccer final finish?

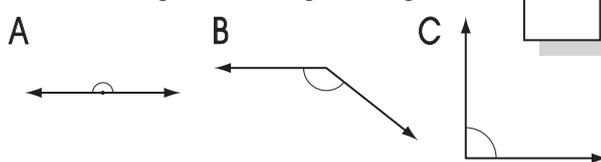
18. [Perimeter / Area]

Use the grid and scale to find the total area of this apartment plan.



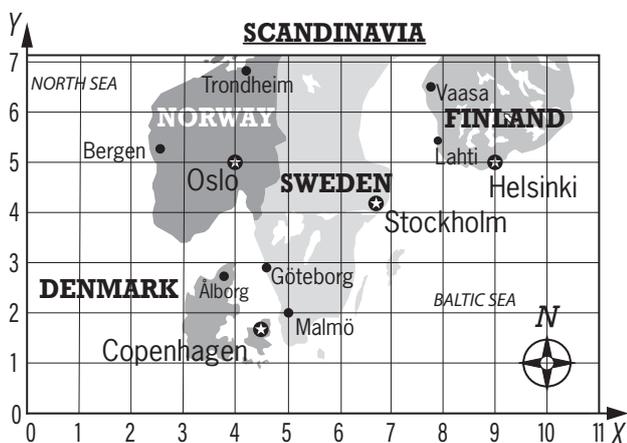
19. [Shapes]

Which angle is a right angle?



20. [Location / Transformation]

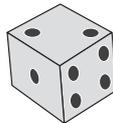
From Malmo you move one unit west and three units north on the grid. Which city are you in and what are the coordinates of this city?



city: (,)

21. [Statistics / Probability]

What is the probability of rolling an even number with one roll of a die?
[Give the answer as a fraction in its simplest form.]



22. [Problem Solving 1]

Jacki looked at the page numbers on the open book in front of her. The page number on the left and the right added to 111. What were the page numbers?

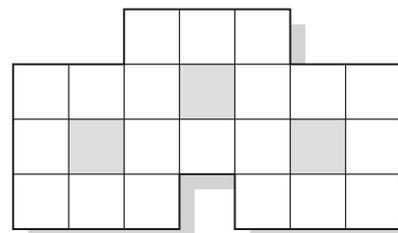
and

23. [Problem Solving 2]

Fill in the cross number puzzle using the following numbers:

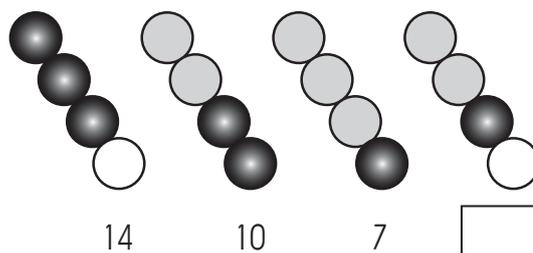
3 digits: 352, 355, 417, 469, 478, 572, 624, 863

4 digits: 4963, 7343



24. [Problem Solving 3]

Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?





Name:

1. [+ Whole Numbers to 10]

	6	10	19	28	11	24	13	17	25	12
+ 6										

2. [- Whole Numbers to 10]

	17	12	11	15	10	13	16	8	14	9
- 5										

3. [× Whole Numbers to 10]

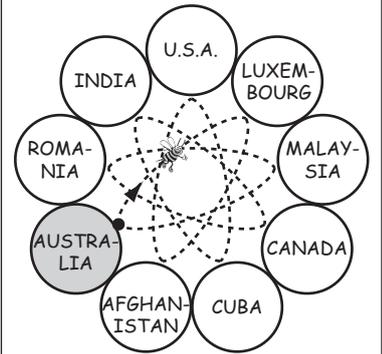
	3	7	6	4	9	8	5	2	1	10
× 7										

4. [÷ Whole Numbers to 10]

	4	40	12	28	24	16	36	32	20	8
÷ 4										

SPELLING BEE

Starting on Australia, follow the Bee's path as you spell the name of one of the countries shown, one letter per bounce. The clever Bee will end up on the chosen country.



5. [Large Number +]

$$\begin{array}{r} 2916 \\ 543 \\ + 1220 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 142 \\ \times 9 \\ \hline \end{array}$$

12. [Place Value]

Place in order from largest to smallest:

8.98, 9.89, 8.89, 9.88, 8.99

6. [Large Number -]

$$\begin{array}{r} 563 \\ - 376 \\ \hline \end{array}$$

9. [Decimals]

$$4 - 0.27 =$$

13. [Operations]

$$12 - 8 \div 4 =$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 80 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]

$$\frac{7}{13} - \frac{3}{13} =$$

14. [Exploring Numbers]

Complete the missing factor in the prime factorisation of 45:

$$45 = 3 \times 3 \times \square$$

11. [Decimals / Fractions / Percentages]

Write 10% as a decimal.

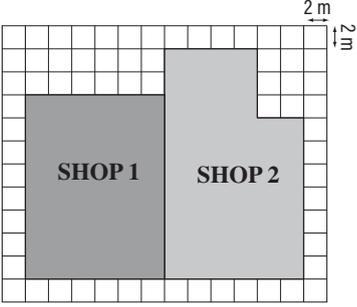
$$\square$$

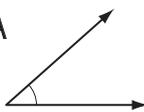
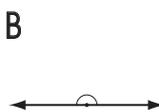
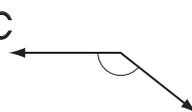
15. [Number Patterns / Equations]

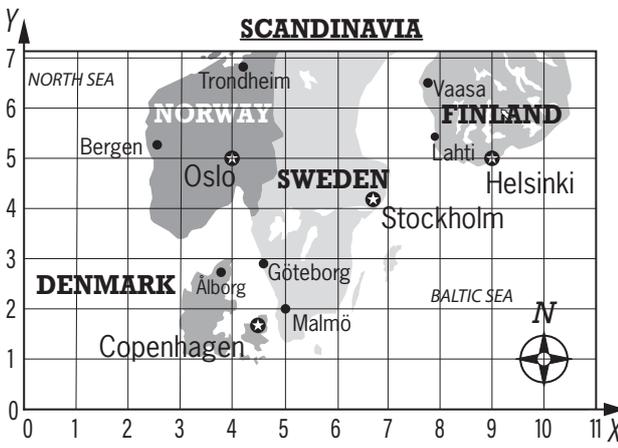
$$\square \div 7 = 5$$

16. [Units of Measurement]
Convert to hours:
180 min = h

17. [Measuring]
Lulu went to camp on the 8:30 am train. The trip took 8 hours. At what time did she reach her destination?

18. [Perimeter / Area]
Use the grid and scale to find the total floor area of SHOP 2.

 m²

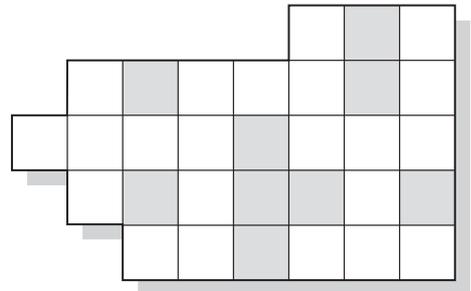
19. [Shapes]
Which angle is a straight angle?
A  B  C 

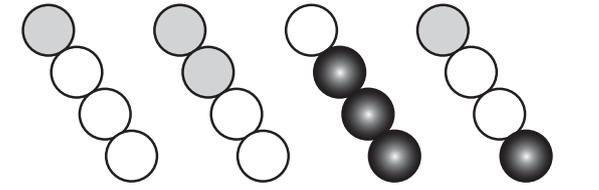
20. [Location / Transformation]
From Malmo you move four units east and three units north on the grid. Which city are you in and what are the coordinates of this city?

city: (,)

21. [Statistics / Probability]
What is the probability of rolling a number greater than 2 with one roll of a die? [Give the answer as a fraction in its simplest form.]



22. [Problem Solving 1]
The sum of two consecutive whole numbers is 49. What are the two numbers?
 and

23. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:
2 digits: 50
3 digits: 121, 186, 202, 323, 351, 500, 504
4 digits: 1800, 2000


24. [Problem Solving 3]
Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?

11 10 6



Name:

1. [+ Whole Numbers to 10]

	27	16	3	20	18	5	14	22	11	29
+ 7										

2. [- Whole Numbers to 10]

	17	15	13	11	10	14	8	12	9	16
- 7										

3. [× Whole Numbers to 10]

	4	5	2	1	7	3	8	9	10	6
× 6										

4. [÷ Whole Numbers to 10]

	12	3	9	15	21	6	24	27	18	30
÷ 3										

WORD CODE

Each letter in the code below represents a different digit. When a letter appears more than once, it always represents the same digit.

Try to find the code.

	C	A	T	
+	D	O	G	
-----	P	E	T	S

1	
2	
3	
4	O
5	S
6	
7	
8	C
9	

ANSWER: PGTOSDCA

5. [Large Number +]

$$\begin{array}{r} 2407 \\ + 1835 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 6 \overline{) 288} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.3		

6. [Large Number -]

$$\begin{array}{r} 452 \\ - 358 \\ \hline \end{array}$$

9. [Decimals]

The price of a lamp is \$74 including GST. If the price before GST is \$67.27, what is the GST?

\$

12. [Place Value]

Round 5.087 to the nearest hundredth.

13. [Operations]

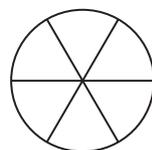
$6 + 7 - 3 - 1 =$

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 5 and 6 are factors of 6040?

7. [Powers of 10 ×, ÷]

$21000 \div 1000 =$



10. [Fractions]

Shade the diagram to add the fractions.

$\frac{2}{3} + \frac{1}{6} =$

15. [Number Patterns / Equations]

2, 14, 24, 32, 38, ,

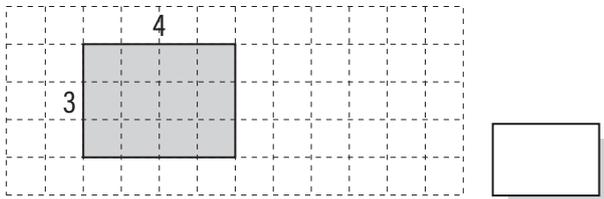
16. [Units of Measurement]
Which is greater?
600 cm or 70000 mm

17. [Measuring]
Puffing Billy is departing Belgrave station at 10:30 am. How long does it take to arrive at Menzies Creek station?
 min

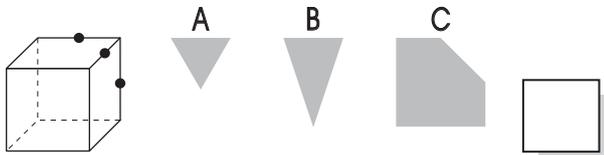
FROM BELGRAVE

Belgrave dep:	10.30	11.10	12.15	1.15	2.30
Menzies Crk arr:	10.53	11.33	12.47	1.47	2.53
Menzies Crk dep:	11.05	11.38	1.05	1.55	3.00
Emerald dep:	11.20	11.53	1.15	2.10	3.20
Lakeside arr:	11.30	12.08	1.30	2.20	3.30
Lakeside dep:	...	12.20	...	...	...
Cockatoo dep:	...	12.35	...	...	...
Gembrook arr:	...	1.00	...	...	...

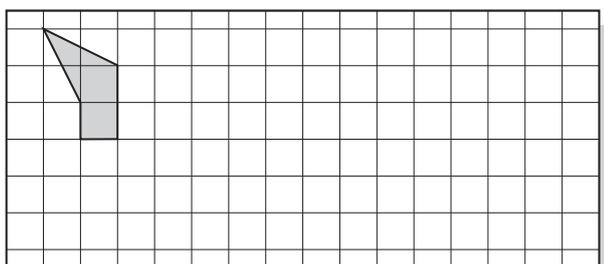
18. [Perimeter / Area]
Double only the length of this rectangle. How many times bigger is the area of the new rectangle compared to the original rectangle?



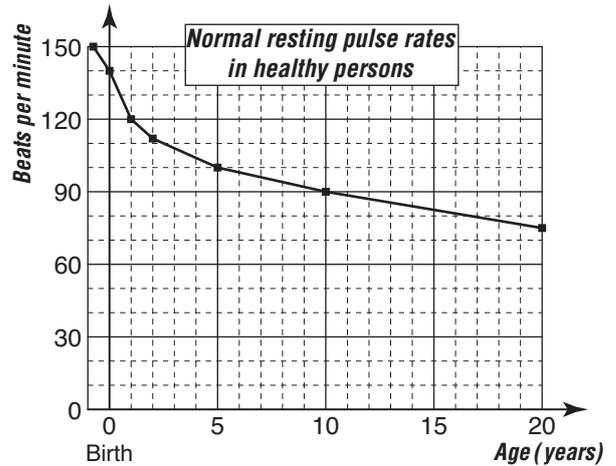
19. [Shapes]
Which shape shows the cross section produced by slicing through the points indicated on the cube?



20. [Location / Transformation]
Redraw this shape after translating it 3 units down and 11 units to the right.



21. [Statistics / Probability]
During which year of a young person's life does his or her resting pulse rate decrease the most?



year

22. [Problem Solving 1]
Fill in the missing digits in the subtraction.

$$\begin{array}{r} \square 5 \\ - 3 \square \\ \hline 4 4 \end{array}$$

23. [Problem Solving 2]
I think of a number, multiply it by 5 and then subtract 2. If the result is 28, what was the original number?

24. [Problem Solving 3]
The table shows the Group H team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Portugal play in its third round robin match? [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 match.]

GROUP H TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Portugal	2	2	0	0	5	2	6
Ghana	2	1	0	1	5	5	3
South Korea	2	0	1	1	2	3	1
Uruguay	2	0	1	1	0	2	1

Portugal vs



Name:

1. [+ Whole Numbers to 10]

	8	23	4	10	15	9	21	12	26	17
+ 4										

2. [- Whole Numbers to 10]

	7	12	13	14	15	10	8	6	11	9
- 5										

3. [× Whole Numbers to 10]

	8	6	5	3	4	1	2	10	9	7
× 3										

4. [÷ Whole Numbers to 10]

	54	18	42	36	30	60	24	12	6	48
÷ 6										

WORD CODE

Each letter in the code below represents a different digit. When a letter appears more than once, it always represents the same digit. Try to find the code.

SING
+ HAPPY

SONGS

	S	I	N	G
+	H	A	P	P
	S	O	N	G
	2		7	9

0	
1	
2	H
3	
4	
5	
6	
7	N
8	
9	Y

ANSWER: IOHSG-PNAVY

5. [Large Number +]

$$\begin{array}{r} 3573 \\ + 4809 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \square \\ 4 \overline{) 392} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.9		

6. [Large Number -]

$$\begin{array}{r} 573 \\ - 477 \\ \hline \end{array}$$

9. [Decimals]

The price of a shirt is \$240 including GST. If the price before GST is \$218.18, what is the GST?

\$

12. [Place Value]

Round 2.673 to the nearest hundredth.

13. [Operations]

$$9 - 5 + 5 - 3 =$$

14. [Exploring Numbers]

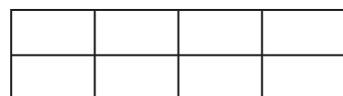
Which of the numbers 2, 3, 4, 5, 6 and 10 are factors of 3765?

7. [Powers of 10 ×, ÷]

$$31000 \div 1000 =$$

10. [Fractions]

Shade the diagram to subtract the fractions.



$$\frac{5}{8} - \frac{1}{4} =$$

15. [Number Patterns / Equations]

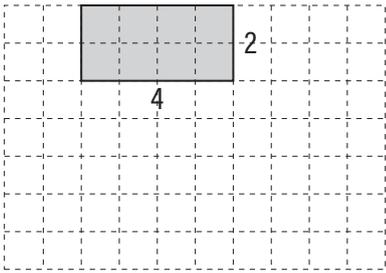
14, 25, 34, 41, 46,

16. [Units of Measurement]
Which is greater?
45 kg or 50000 g

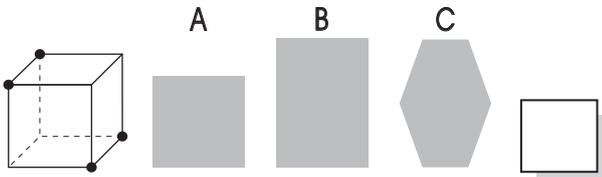
17. [Measuring]
What time does the 2:00 pm show of 'Titanic 2' finish?
Use the 12-hour time format.

CINEMA & MOVIE	LENGTH	STARTING TIMES
1 - Titanic 2	150 min	11:00 am, 2:00 pm
2 - Home Alone VII	90 min	10:15 am, 2:00 pm
2 - Jurassic Ark	75 min	12:15 pm, 4:00 pm
3 - Star Wars 2030	120 min	10:00 am, 12:30 pm 3:00 pm

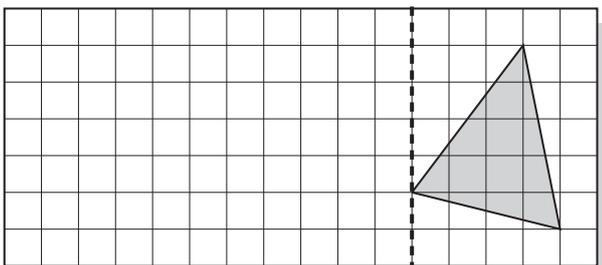
18. [Perimeter / Area]
Triple only the width of this rectangle.
How many times bigger is the area of the new rectangle compared to the original rectangle?



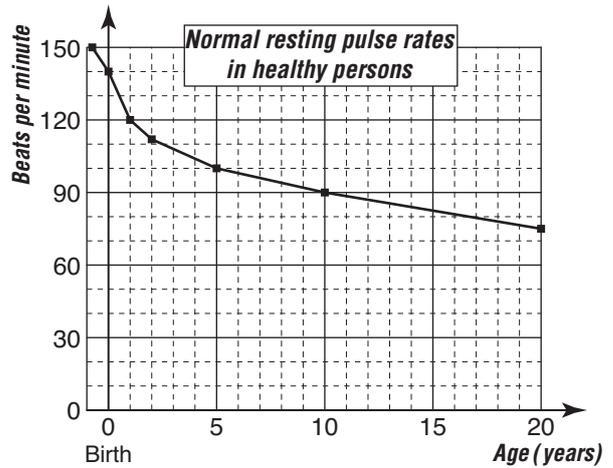
19. [Shapes]
Which shape shows the cross section produced by slicing through the points indicated on the cube?



20. [Location / Transformation]
Redraw this shape after reflecting it in the dotted line and then translating it 5 units to the left.



21. [Statistics / Probability]
At what age does the normal resting pulse first reaches 90 beats per minute?



years

22. [Problem Solving 1]
Fill in the missing digits in the subtraction.

$$\begin{array}{r} \square 8 \\ - 4 \square \\ \hline 34 \end{array}$$

23. [Problem Solving 2]
I think of a number, subtract 11 and then multiply by 6. If the result is 24, what was the original number?

24. [Problem Solving 3]
The table shows the Group D team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Tunisia play in its third round robin match? [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 match.]

GROUP D TEAMS	MP Played	W Wins	D Draws	L Losses	GF Goals For	GA Goals Against	Pts Points
France	2	2	0	0	6	2	6
Australia	2	1	0	1	2	4	3
Denmark	2	0	1	1	1	2	1
Tunisia	2	0	1	1	0	1	1

Tunisia vs



Name:

1. [+ Whole Numbers to 10]

	17	8	29	6	15	34	10	21	32	13
+ 10										

2. [- Whole Numbers to 10]

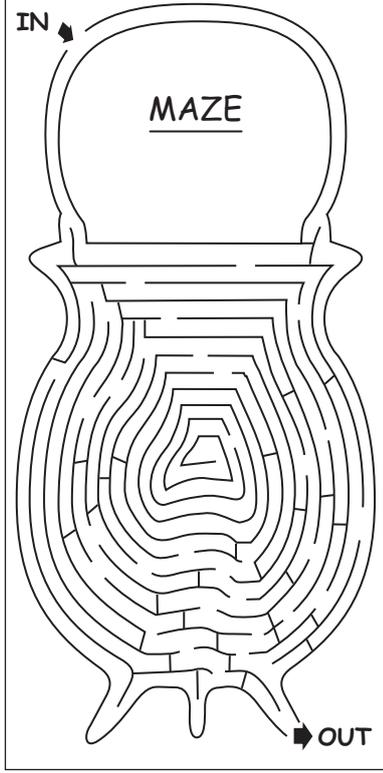
	16	11	13	10	17	38	19	14	15	12
- 8										

3. [× Whole Numbers to 10]

	5	3	2	4	10	1	8	9	6	7
× 5										

4. [÷ Whole Numbers to 10]

	80	64	72	16	24	40	56	8	48	32
÷ 8										



5. [Large Number +]

$$\begin{array}{r} 2676 \\ + 570 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 89 \\ \times 74 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 40% of \$100.

6. [Large Number -]

$$\begin{array}{r} 736 \\ - 79 \\ \hline \end{array}$$

12. [Place Value]

Estimate the sum of 8.09 and 7.6 by rounding to the nearest whole number before adding.

9. [Decimals]

$$8.31 \times 10 =$$

13. [Operations]

$$(3 + 6) \times 5 =$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 200 \\ \times 100 \\ \hline \end{array}$$

10. [Fractions]

Of the 12 teachers at the school, two thirds are women. How many teachers are women?

$$\frac{2}{3} \text{ of } 12 =$$

14. [Exploring Numbers]

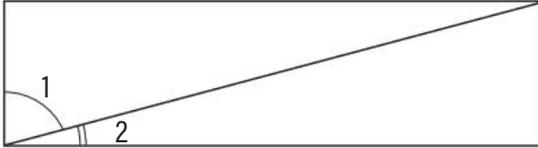
Write as a positive or negative number:
six hundred metres above sea level.

15. [Number Patterns / Equations]

3, 4.2, 5.4, 6.6,

16. [Units of Measurement]
Circle the shortest distance.
40 m 1 km 5000 cm

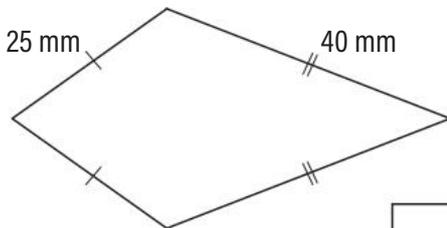
17. [Measuring]
Measure the marked angles below:



Angle 1 = Angle 2 =

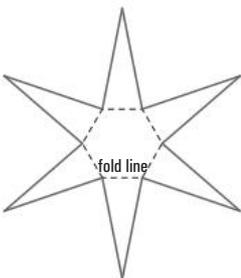
The sum of these angles is:

18. [Perimeter / Area]
Find the perimeter of the kite.

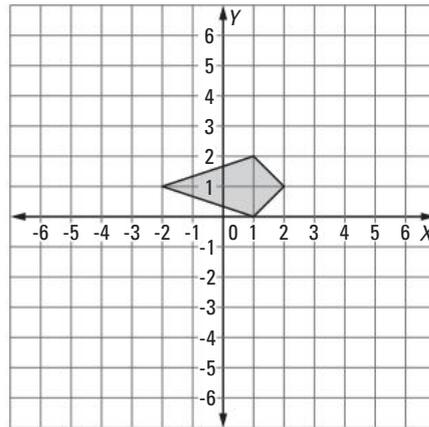


mm

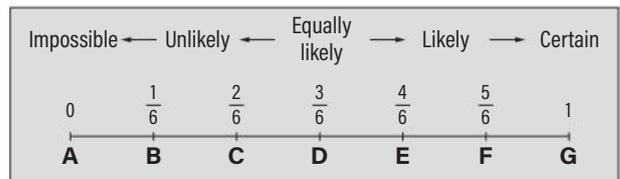
19. [Shapes]
What 3-dimensional shape can this net be used to make?



20. [Location / Transformation]
Redraw this kite after multiplying its coordinates by 2 (enlargement of factor 2).



21. [Statistics / Probability]
On the probability scale below, which letter A to G best represents the probability of this event?
"A number greater than 6 turns up when a die is rolled."



22. [Problem Solving 1]
Fill in the missing number.

$\div 4 - 3 = 9$

23. [Problem Solving 2]
Fill in the magic square.
[Hint: Every row, column and diagonal has the same sum.]

		5
	7	
9	2	

24. [Problem Solving 3]
From the diagram, calculate the cost of one pair of trousers.

 +  = \$510

 +  = \$380

\$





Name:

1. [+ Whole Numbers to 10]

	33	20	9	14	31	25	38	7	12	16
+ 4										

2. [- Whole Numbers to 10]

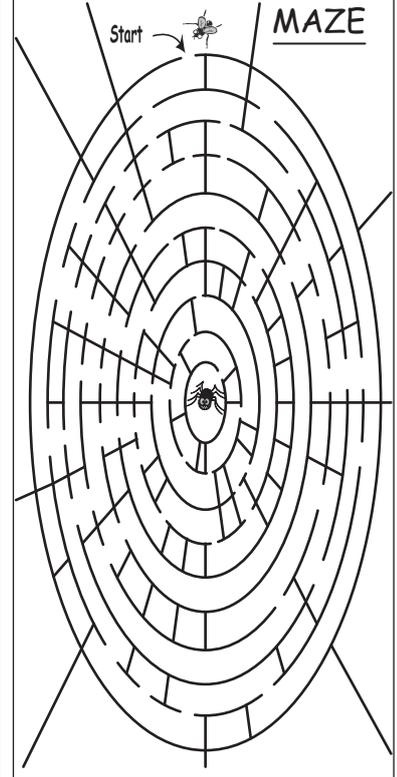
	35	12	13	27	11	10	9	14	18	6
- 4										

3. [× Whole Numbers to 10]

	10	6	4	5	2	1	7	3	8	9
× 8										

4. [÷ Whole Numbers to 10]

	42	7	70	14	21	35	63	56	49	28
÷ 7										



5. [Large Number +]

$$\begin{array}{r} 3980 \\ + 387 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 77 \\ \times 26 \\ \hline \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 60% of \$100.

\$

6. [Large Number -]

$$\begin{array}{r} 1504 \\ - 238 \\ \hline \end{array}$$

12. [Place Value]

Estimate the sum of 7.2 and 9.65 by rounding to the nearest whole number before adding.

9. [Decimals]

$2.74 \times 10 =$

13. [Operations]

$(4 + 3) \times 3 =$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 40 \\ \times 1000 \\ \hline \end{array}$$

10. [Fractions]

Three tenths of the 40 days of the summer holiday are spent overseas. How many days are spent overseas?

$\frac{3}{10}$ of 40 =

14. [Exploring Numbers]

Write as a positive or negative number:
twelve degrees below zero.

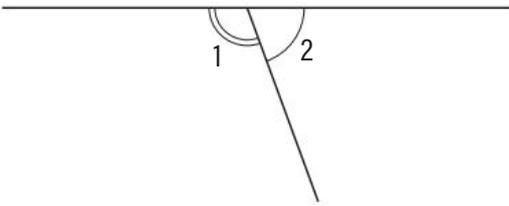
15. [Number Patterns / Equations]

2, 3.5, 5, 6.5, 8, ,

16. [Units of Measurement]
Circle the greatest mass.

1 kg 4000 t 5000 g

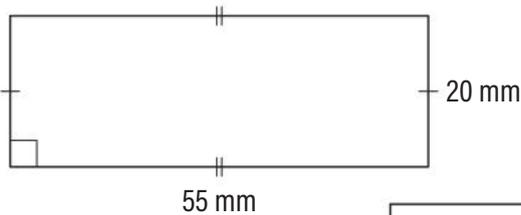
17. [Measuring]
Measure the marked angles below:



Angle 1 = Angle 2 =

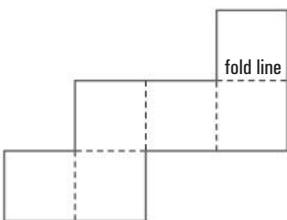
The sum of these angles is:

18. [Perimeter / Area]
Find the perimeter of the rectangle.

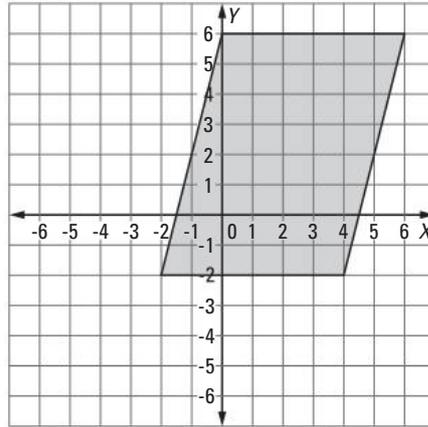


mm

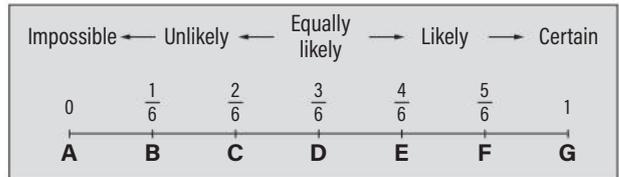
19. [Shapes]
What 3-dimensional shape can this net be used to make?



20. [Location / Transformation]
Redraw this parallelogram after dividing its coordinates by 2 (reduction of factor 2).



21. [Statistics / Probability]
On the probability scale below, which letter A to G best represents the probability of this event?
"A number less than 5 turns up when a die is rolled."



22. [Problem Solving 1]
Fill in the missing number.

$\div 5 - 4 = 3$

23. [Problem Solving 2]
Fill in the magic square.
[Hint: Every row, column and diagonal has the same sum.]

9		
	7	
	12	5

24. [Problem Solving 3]
From the diagram, calculate the cost of one shirt.

 +  = \$410

 +  = \$450

\$





Name:

1. [+ Whole Numbers to 10]

	5	11	24	19	37	18	30	23	12	36
+ 6										

2. [- Whole Numbers to 10]

	11	8	24	13	12	30	6	7	5	29
- 4										

3. [× Whole Numbers to 10]

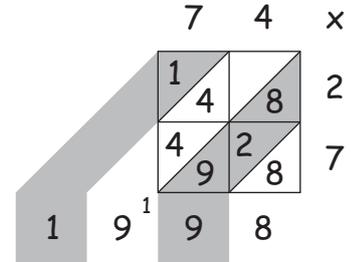
	7	5	6	4	1	8	2	9	10	3
× 6										

4. [÷ Whole Numbers to 10]

	32	8	36	16	12	24	28	40	20	4
÷ 4										

CHINESE LATTICE

Multiply 74×27 using the Chinese Lattice method.



- Try
- a) 12×78
 - b) 62×26
 - c) 94×125

Answers: (a) 936 (b) 1612 (c) 11750

5. [Large Number +]

$$\begin{array}{r} 4467 \\ 2022 \\ + 584 \\ \hline \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \\ 7 \overline{) 1715} \end{array}$$

12. [Place Value]

Estimate the total cost by rounding to the nearest dollar:
 $\$15.25 + \$3.50 + \$9.75 + \8.25

\$

9. [Decimals]

$$\begin{array}{r} 1.04 \\ \times 2 \\ \hline \end{array}$$

13. [Operations]

$2 + 3 \times (5 - 2) =$

6. [Large Number -]

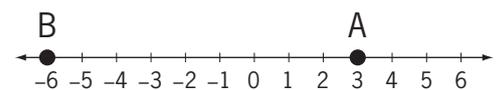
$$\begin{array}{r} 4247 \\ - 869 \\ \hline \end{array}$$

10. [Fractions]

Shade the pentagons to show that $2\frac{2}{5} = \frac{12}{5}$

14. [Exploring Numbers]

What numbers are shown at points A and B?



A = B =

7. [Powers of 10 ×, ÷]

$61000 \div 100 =$

11. [Decimals / Fractions / Percentages]

If a \$600 watch is reduced by 20%, what is the discount? \$

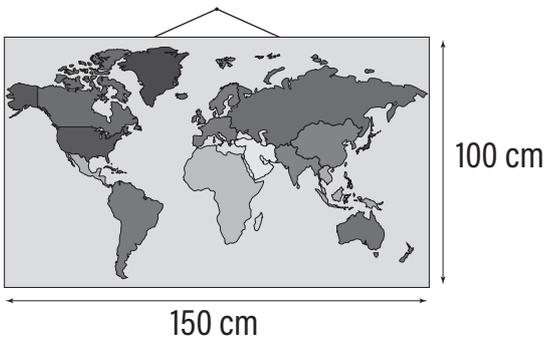
15. [Number Patterns / Equations]

$\frac{1}{2}$ of = 25

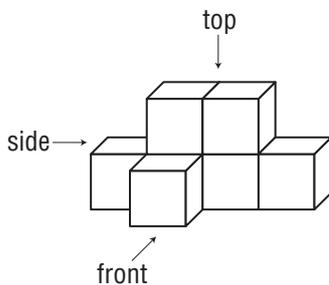
16. [Units of Measurement]
How many 200 mL jugs of water are necessary to fill up a 2 L bottle?

17. [Measuring]
Jim dropped off the prescription at the pharmacy at 4:45 pm. He was told it would be ready in 30 minutes. What time would that be? Answer using the 12-hour time format.

18. [Perimeter / Area]
Find the area of this wall map.


 cm^2

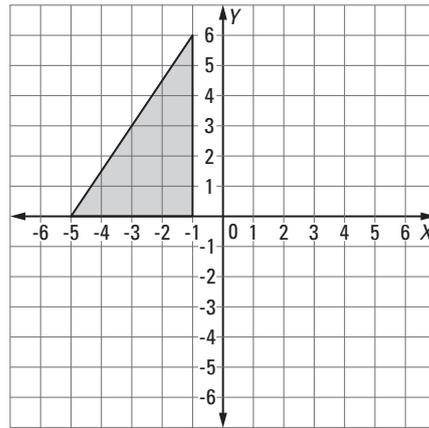
19. [Shapes]
Draw the front and side views of this 3-dimensional shape.



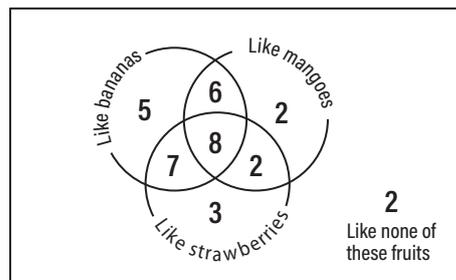
front view			

side view			

20. [Location / Transformation]
Redraw this triangle after rotating it 90° clockwise around the point of coordinates $(-1,0)$.



21. [Probability / Statistics]
Of those surveyed at the market, how many children like both mangoes and strawberries, but not bananas?



22. [Problem Solving 1]
Which deal costs less per litre?

- A \$1.50 for 250 mL
B \$5 for 1 L

23. [Problem Solving 2]
Each flag represents a different digit. Can you find the solution to the cipher?

$$7 + \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} = \begin{array}{|c|} \hline \diagup \\ \hline \end{array} \begin{array}{|c|} \hline \diagdown \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \diagdown \\ \hline \end{array} \times \begin{array}{|c|} \hline \hline \\ \hline \end{array} = \begin{array}{|c|} \hline \diagup \\ \hline \end{array} \begin{array}{|c|} \hline \diagdown \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \diagdown \\ \hline \end{array} = \quad , \quad \begin{array}{|c|} \hline \hline \\ \hline \end{array} = \quad , \quad \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = \quad , \quad \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} = \quad$$

24. [Problem Solving 3]
Fill in the missing digits in the multiplication.

$$\begin{array}{r} 1 \square 4 \\ \times \quad \quad 7 \\ \hline \square 3 \square \end{array}$$





Name:

1. [+ Whole Numbers to 10]

	26	34	13	20	28	31	5	27	9	12
+ 8										

2. [- Whole Numbers to 10]

	8	15	26	14	12	30	9	13	7	31
- 6										

3. [× Whole Numbers to 10]

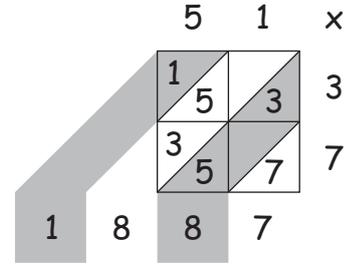
	3	10	7	1	4	2	9	8	5	6
× 9										

4. [÷ Whole Numbers to 10]

	25	10	5	50	15	35	30	20	45	40
÷ 5										

CHINESE LATTICE

Multiply 51×37 using the Chinese Lattice method.



Try a) 21×67
b) 45×54
c) 73×183

Answers: (a) 1407 (b) 2430 (c) 13359

5. [Large Number +]

$$\begin{array}{r} 5655 \\ 1041 \\ + 357 \\ \hline \end{array}$$

8. [Large Number \times, \div]

$$\begin{array}{r} \square \\ 5 \overline{) 3210} \end{array}$$

12. [Place Value]

Estimate the total cost by rounding to the nearest dollar:
 $\$16.35 + \$3.05 + \$7.50 + \9.25

\$

9. [Decimals]

$$\begin{array}{r} 2.13 \\ \times 3 \\ \hline \end{array}$$

13. [Operations]

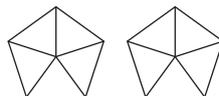
$7 + 3 \times (6 - 4) =$

6. [Large Number -]

$$\begin{array}{r} 8366 \\ - 597 \\ \hline \end{array}$$

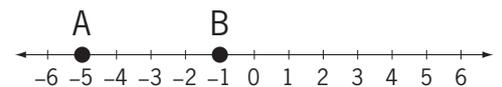
10. [Fractions]

Shade the pentagons to show that $1\frac{4}{5} = \frac{9}{5}$



14. [Exploring Numbers]

What numbers are shown at points A and B?



A = B =

7. [Powers of 10 \times, \div]

$9000 \div 100 =$

11. [Decimals / Fractions / Percentages]

If a \$400 printer is reduced by 20%, what is the discount? \$

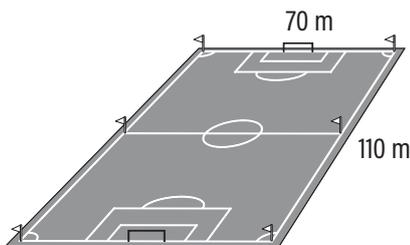
15. [Number Patterns / Equations]

$\frac{1}{4}$ of = 10

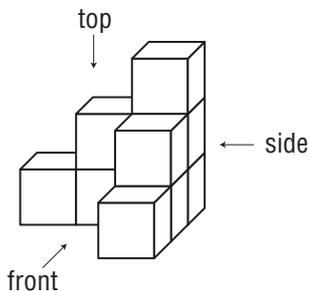
16. [Units of Measurement]
One lap of an athletics track is 400 m long. How many laps of the oval must an athlete complete to run 2 km?

17. [Measuring]
Yuma dropped off the prescription at the pharmacy at 6:55 pm. He was told it would be ready in 20 minutes. What time would that be? Answer using the 12-hour time format.

18. [Perimeter / Area]
Find the area of this rectangular football field.


 m²

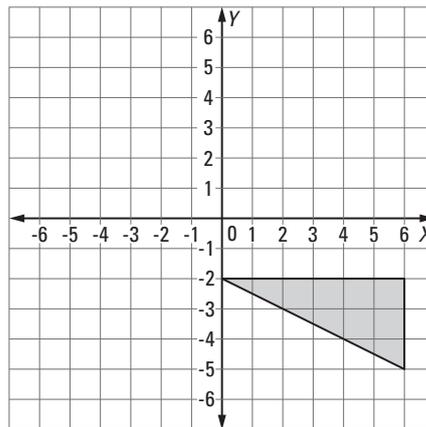
19. [Shapes]
Draw the side and top views of this 3-dimensional shape.



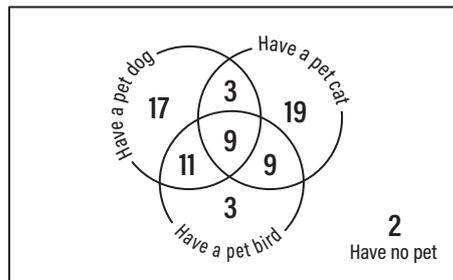
side view		

top view		

20. [Location / Transformation]
Redraw this triangle after rotating it 90° anticlockwise around the point of coordinates (0, -2).



21. [Probability / Statistics]
Of those surveyed at the pet shop, how many families have both a pet cat and a pet dog, but not a pet bird?



22. [Problem Solving 1]
Which deal costs less per gram?

- A \$3 for 300 g
B \$8 for 900 g

23. [Problem Solving 2]
Each flag represents a different digit. Can you find the solution to the cipher?

$$6 + \begin{array}{|c|c|} \hline \diagup & \diagdown \\ \hline \end{array} = \begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array} \begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array}$$

$$\begin{array}{|c|c|} \hline \diagup & \diagdown \\ \hline \end{array} \times \begin{array}{|c|c|} \hline \hline \hline \hline \\ \hline \end{array} = \begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array} \begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array}$$

$$\begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array} = \quad , \quad \begin{array}{|c|c|} \hline \hline \hline \hline \\ \hline \end{array} = \quad , \quad \begin{array}{|c|c|} \hline \diagdown & \diagup \\ \hline \end{array} = \quad , \quad \begin{array}{|c|c|} \hline \diagup & \diagdown \\ \hline \end{array} = \quad$$

24. [Problem Solving 3]
Fill in the missing digits in the multiplication.

$$\begin{array}{r} 1 \square 3 \\ \times \quad \quad 6 \\ \hline \square 3 \square \end{array}$$



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 - 18



Test Masters

pages 1 - 32



Test Answers

pages 1 - 32



Record Keeping Sheets

pages 1 - 10



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

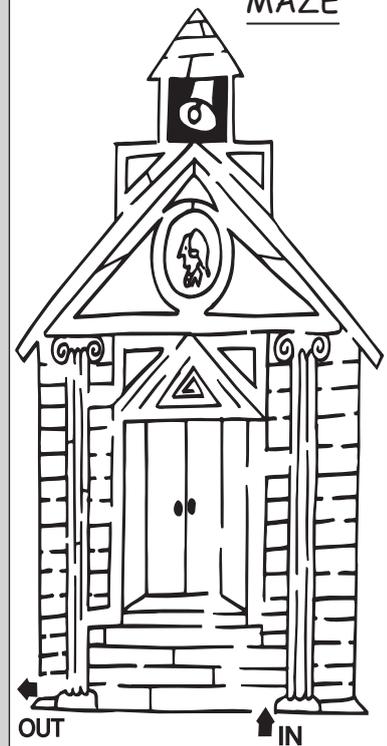
3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MAZE



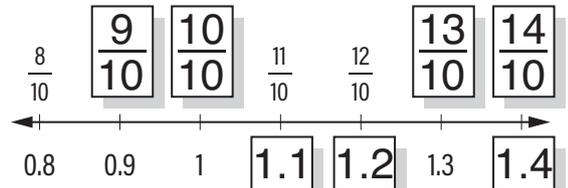
5. [Large Number +]

$$\begin{array}{r} 4523 \\ + 1034 \\ \hline 5557 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 87 \\ \times 3 \\ \hline 261 \end{array}$$

11. [Decimals / Fractions / Percentages]
Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 748 \\ - 222 \\ \hline 526 \end{array}$$

9. [Decimals]
Write as a decimal:
three and forty-one hundredths.

3.41

12. [Place Value]
Which digit in 345.1 is in the same place as the 8 in 6.87?

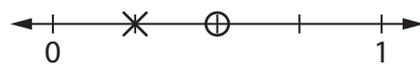
1

13. [Operations]
 $5 \times 17 = 17 \times 5$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 71 \\ \times 100 \\ \hline 7100 \end{array}$$

10. [Fractions]
Mark $\frac{1}{2}$ with a circle and $\frac{1}{4}$ with a cross on the number line.



14. [Exploring Numbers]
Write in numerals:
five thousand and fifty-five

5055

15. [Number Patterns / Equations]

27, 36, 45, 54, 63, 72, 81

16. [Units of Measurement]
How many of these objects are likely to have a mass greater than 1 kilogram?

A house brick
A watermelon
A large dog
A pair of scissors

3

17. [Measuring]
Estimate the length of the safety pin.



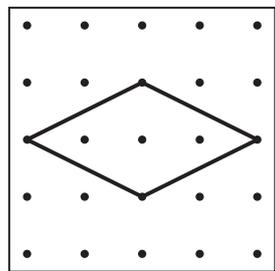
Accept 55 to 65 → **60 mm**

18. [Perimeter / Area]
Using a ruler, measure the side length of the square in millimetres. What is the perimeter of the square?

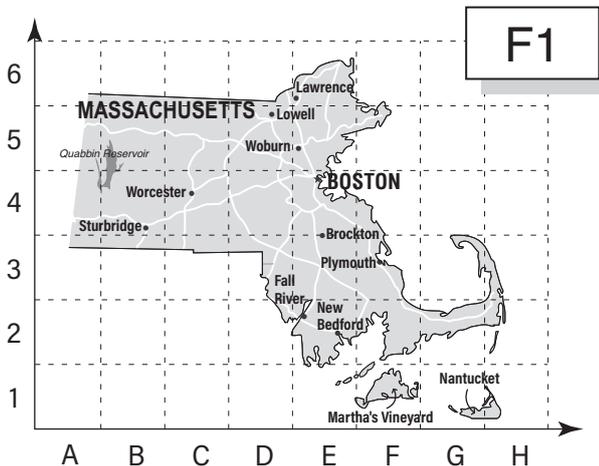


40 mm

19. [Shapes]
Draw a rhombus on the dotted grid. Make sure that all the vertices are on a dot.

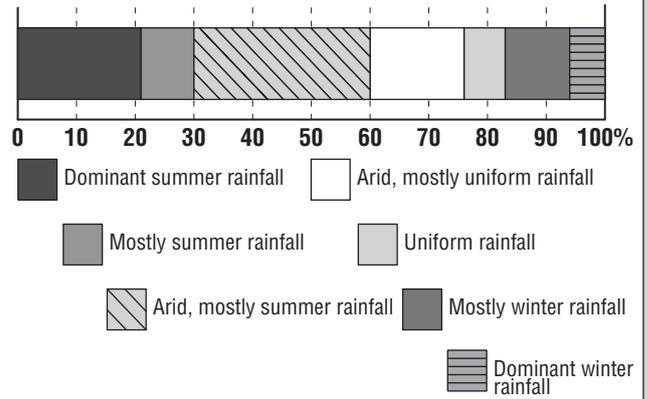


20. [Location / Transformation]
Which grid reference describes the location of Martha's Vineyard?



21. [Statistics / Probability]
Which climatic zone covers more than the dominant summer rainfall zone?

Australian Climatic Zones
according to rainfall

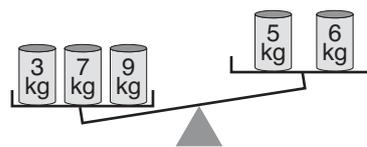


arid, mostly summer rainfall

22. [Problem Solving 1]
If it takes Nadira six minutes to saw a log into two pieces, how long would it take her to cut a log into three pieces?

12 min

23. [Problem Solving 2]
Which two weights need to be swapped to balance the scales?



9 kg and 5 kg

24. [Problem Solving 3]
Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r} 7 \boxed{3} 6 \\ + \boxed{2} 1 \boxed{4} \\ \hline 9 \boxed{5} 0 \end{array}$$





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

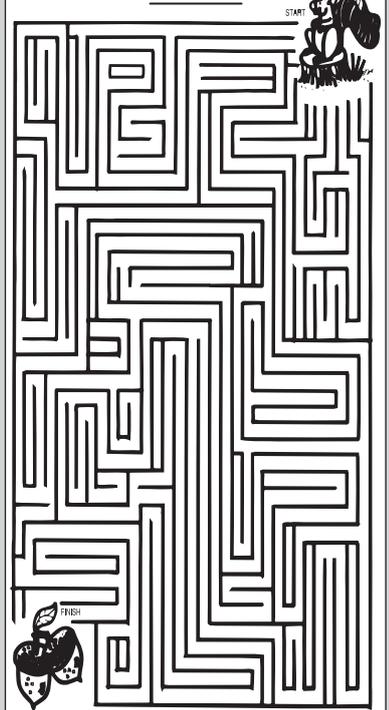
3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

MAZE



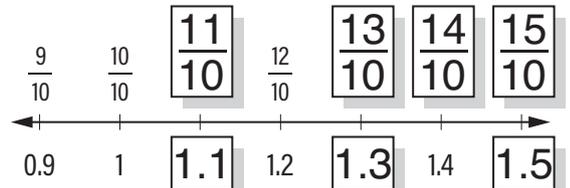
5. [Large Number +]

$$\begin{array}{r} 4823 \\ + 1054 \\ \hline 5877 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 75 \\ \times 8 \\ \hline 600 \end{array}$$

11. [Decimals / Fractions / Percentages]
Complete the number line.



6. [Large Number -]

$$\begin{array}{r} 964 \\ - 423 \\ \hline 541 \end{array}$$

9. [Decimals]
Write as a decimal:
two and seventy-eight hundredths.

2.78

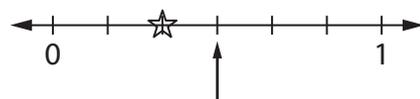
12. [Place Value]
Which digit in 291.3 is in the same place as the 5 in 9.54?

3

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 49 \\ \times 1000 \\ \hline 49000 \end{array}$$

10. [Fractions]
Mark $\frac{1}{3}$ with a star
and $\frac{1}{2}$ with an arrow
on the number line.



13. [Operations]
 $14 \times 2 = 2 \times 14$

14. [Exploring Numbers]
Write in numerals:
two thousand
and twenty-two

2022

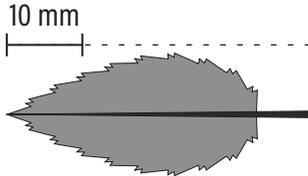
15. [Number Patterns / Equations]

58, 50, 42, 34, 26, 18, 10

16. [Units of Measurement]
How many of these objects are likely to have a capacity greater than 1 litre?

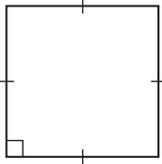
An egg cup
 A tablespoon
 The bill of a pelican
 The petrol tank of a car **2**

17. [Measuring]
Estimate the length of the leaf.



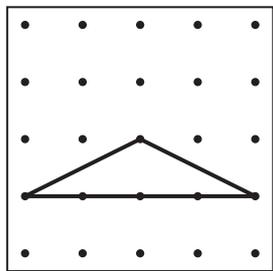
Accept 35 to 45 → **40 mm**

18. [Perimeter / Area]
Using a ruler, measure the side lengths of the square in centimetres. What is the perimeter of the square?

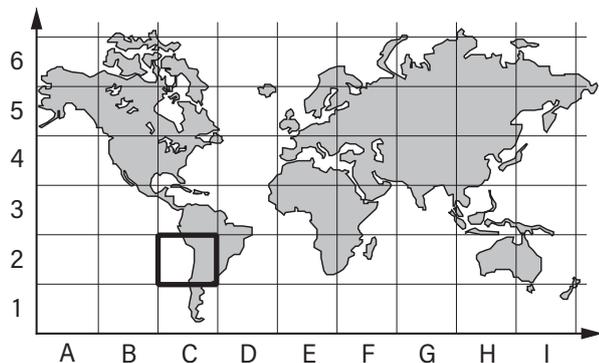


8 cm

19. [Shapes]
Draw an obtuse-angled triangle with two equal sides on the dotted grid. Make sure that all the vertices are on a dot.

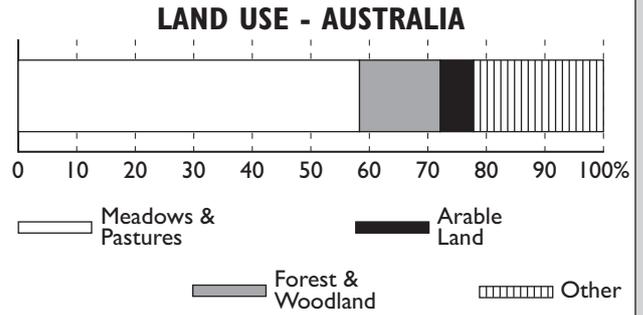


20. [Location / Transformation]
A part of which continent is shown at C2 on this map?



South America

21. [Statistics / Probability]
Which type of land use covers more than half of Australia?

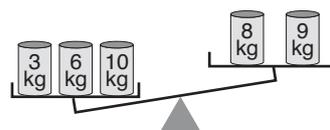


meadows & pastures

22. [Problem Solving 1]
Juliet takes an hour to plant a creeper between each of the 3 fence posts on the left of her driveway. How long will it take to plant creepers between the 5 posts on the other side of the driveway?

120 min

23. [Problem Solving 2]
Which two weights need to be swapped to balance the scales?



10 kg and 9 kg

24. [Problem Solving 3]
Fill in the missing digits, given that no digit is repeated.

$$\begin{array}{r}
 \boxed{5} \boxed{0} \boxed{9} \\
 + \boxed{1} \boxed{7} \boxed{4} \\
 \hline
 \boxed{6} \boxed{8} \boxed{3}
 \end{array}$$



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	5	3	2	4	10	1	8	9	6	7
× 5	25	15	10	20	50	5	40	45	30	35

4. [÷ Whole Numbers to 10]

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

DECODE THESE INITIALS

Each statement contains the initials of missing words. Complete the words so that the statements make sense.

e.g. N. in an O. = 8
8 Notes in an Octave.

Try your skill on these:

- S. in a M. = 60
- M. in a S. = 3
- T. with A. B. = 40
- L. on a S. = 8
- V. in the A. = 5

Answer: Seconds, Minute / Months, Season / Thieves, All, Baba / Legs, Spider / Vowels, Alphabet.

5. [Large Number +]

$$\begin{array}{r} 1312 \\ 1142 \\ + 2219 \\ \hline 4673 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 3412 \\ 2 \overline{)6824} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{9}{100}$ as a decimal.

0.09

12. [Place Value]

What is the value of the digit 1 in the number 62.193?

or 0.1 $\frac{1}{10}$

6. [Large Number -]

$$\begin{array}{r} 93 \\ - 26 \\ \hline 67 \end{array}$$

9. [Decimals]

$$\$7.65 + \$1.70 =$$

\$9.35

13. [Operations]

Which expression equals 9?

- A $1 \div 9$
- B $1 - 9$
- C 1×9

C

7. [Powers of 10 ×, ÷]

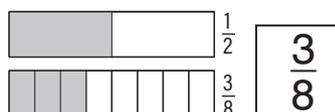
$$470 \div 10 =$$

47

10. [Fractions]

Shade the fraction bars to show $\frac{1}{2}$ and $\frac{3}{8}$.

Which fraction is smaller?



$\frac{3}{8}$

14. [Exploring Numbers]

Write the number 9022 in words.

nine thousand and twenty-two

15. [Number Patterns / Equations]

$$9 + 19 = 28$$

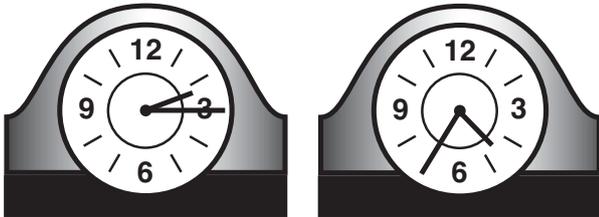
16. [Units of Measurement]

Convert to centimetres:

60 mm =

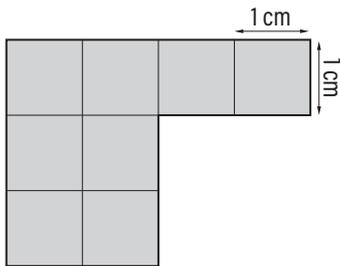
17. [Measuring]

Draw hands on the second clock to show the time 2 hours and 20 minutes later than the first.



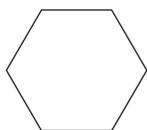
18. [Perimeter / Area]

Find the area of this shape.



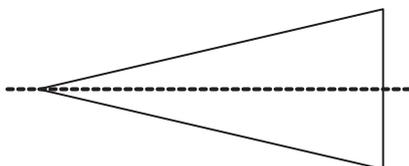
19. [Shapes]

How many sides does a hexagon have?



20. [Location / Transformation]

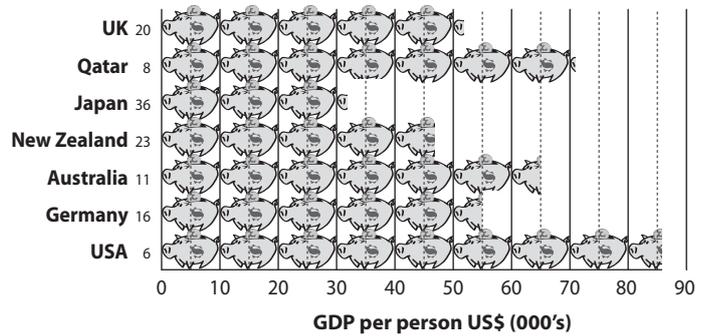
Draw the line(s) of symmetry through this isosceles triangle. How many lines of symmetry does this triangle have?



21. [Statistics / Probability]

How many countries had a Gross Domestic Product (GDP) averaging more than US\$60 000 per person?

NATIONAL WEALTH OF SELECTED COUNTRIES - 2024



22. [Problem Solving 1]

Draw the missing house.

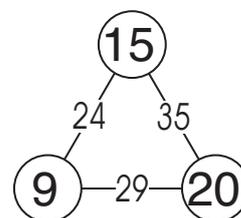


23. [Problem Solving 2]

A seat factory makes 4-legged chairs and 3-legged stools. Yesterday they made 14 seats. If the seats had a total of 51 legs, how many stools did they produce?

24. [Problem Solving 3]

Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	4	8	5	7	1	6	2	3	10	9
× 3	12	24	15	21	3	18	6	9	30	27

4. [÷ Whole Numbers to 10]

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

DECODE THESE INITIALS

Each statement contains the initials of missing words. Complete the words so that the statements make sense.

e.g. R. pull S. S. = 9
9 Reindeer pull Santa's Sleigh.

Try your skill on these:

B. D. = 13
N. on a C. F. = 12
D. for P. G. in M. = 200
D. in A. = 30
S. of a H. = 6

Answer: Baker's, Dozen / Numbers, Clock, Face / Dollars, Passing, Go, Monopoly / Days, April / Sides, Hexagon.

5. [Large Number +]

$$\begin{array}{r} 1422 \\ 2133 \\ + 1216 \\ \hline 4771 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 3121 \\ 3 \overline{)9363} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write $\frac{52}{100}$ as a decimal.

0.52

12. [Place Value]

What is the value of the digit 9 in the number 1.296?

or 0.09 $\frac{9}{100}$

6. [Large Number -]

$$\begin{array}{r} 82 \\ - 48 \\ \hline 34 \end{array}$$

9. [Decimals]

$$\$5.55 + \$2.90 =$$

\$8.45

13. [Operations]

Which expression equals 7?

- A 1×7
- B $1 + 7$
- C $1 \div 7$

A

7. [Powers of 10 ×, ÷]

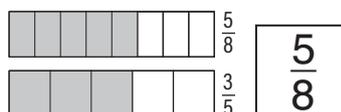
$$530 \div 10 =$$

53

10. [Fractions]

Shade the fraction bars to show $\frac{5}{8}$ and $\frac{3}{5}$.

Which fraction is greater?



$\frac{5}{8}$

14. [Exploring Numbers]

Write the number 6057 in words.

six thousand and fifty-seven

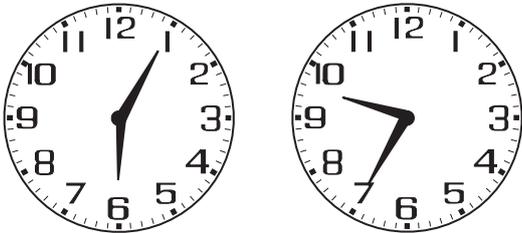
15. [Number Patterns / Equations]

$$18 + 8 = 26$$

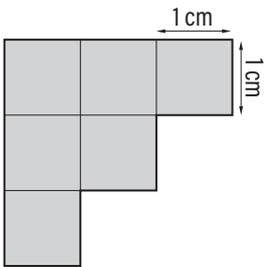
16. [Units of Measurement]
Convert to metres:

$$1.5 \text{ km} = \boxed{1500 \text{ m}}$$

17. [Measuring]
Draw hands on the second clock to show the time 3 hours and 30 minutes later than the first.

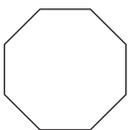


18. [Perimeter / Area]
Find the area of this shape.



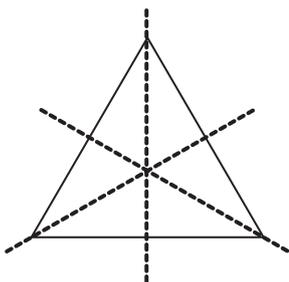
$$\boxed{6 \text{ cm}^2}$$

19. [Shapes]
How many interior angles does an octagon have?



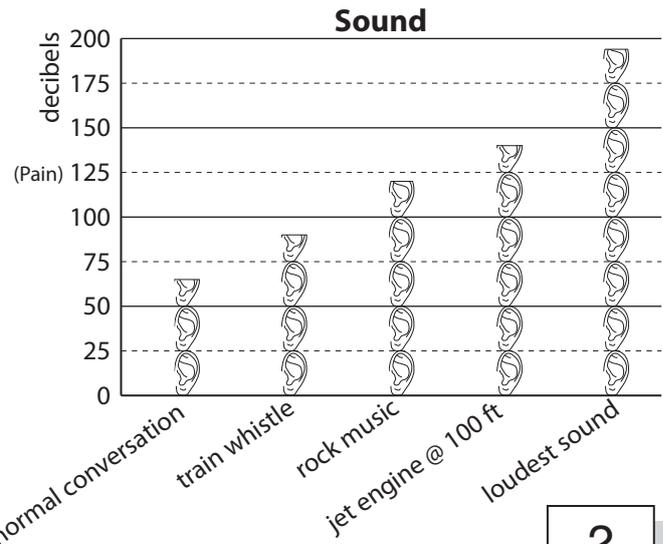
8

20. [Location / Transformation]
Draw the line(s) of symmetry through this equilateral triangle. How many lines of symmetry does this triangle have?



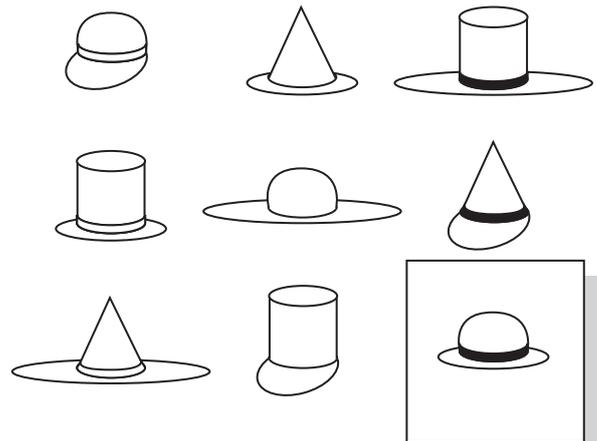
3

21. [Statistics / Probability]
Pain is felt once a sound goes beyond 125 decibels. How many of these sounds would hurt your ears?



2

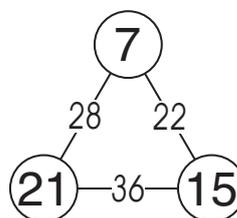
22. [Problem Solving 1]
Draw the missing hat.



23. [Problem Solving 2]
There are 86 legs on the 38 animals on the farm. Each animal has either 2 legs or 4 legs. How many 2-legged animals are there?

33

24. [Problem Solving 3]
Enter numbers in the circles so that the numbers on each line equal the sum of the numbers at each end.





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

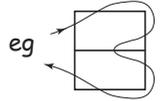
	9	7	8	6	5	3	4	1	2	10
× 6	54	42	48	36	30	18	24	6	12	60

4. [÷ Whole Numbers to 10]

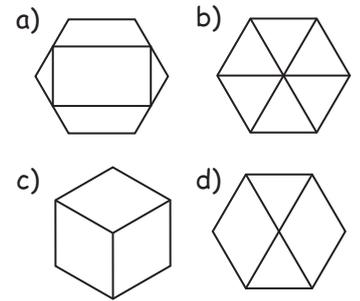
	10	4	18	20	2	12	14	8	16	6
÷ 2	5	2	9	10	1	6	7	4	8	3

FIND A PATH

Try to draw a single path which cuts through each of the line segments in the sketches below only once.



Which sketch below has no such path?



Answer: b)

5. [Large Number +]

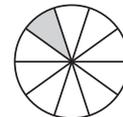
$$\begin{array}{r} 13 \\ 34 \\ + 16 \\ \hline 63 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 903 \\ \times 9 \\ \hline 8127 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 10% as a fraction in simplest form.



$$\frac{1}{10}$$

6. [Large Number -]

$$\begin{array}{r} 500 \\ - 7 \\ \hline 493 \end{array}$$

9. [Decimals]

How much change will you receive from \$5.00 if you spend \$3.35?

$$\$ 1.65$$

12. [Place Value]

In which number does the digit 3 have a smaller value?

- A 43.92
B 42.39

B

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 868 \\ \times 100 \\ \hline 86800 \end{array}$$

10. [Fractions]

Complete to form equivalent fractions:

$$\frac{2}{3} = \frac{8}{12}$$

13. [Operations]

$$16 - 4 + 4 =$$

16

14. [Exploring Numbers]

Which list has only factors of 20?

- A 1, 2, 4, 5
B 1, 2, 3, 5

A

15. [Number Patterns / Equations]

$$2, 8, 32, 128, \underline{512}, \underline{2048}$$

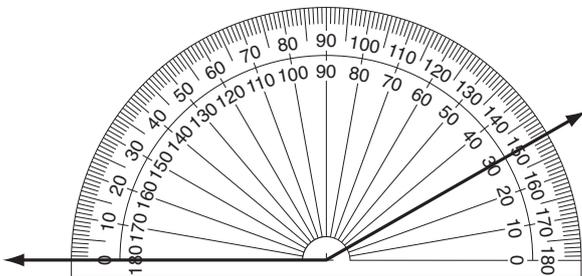
16. [Units of Measurement]

Convert to kilograms:

8000 g = **8 kg**

17. [Measuring]

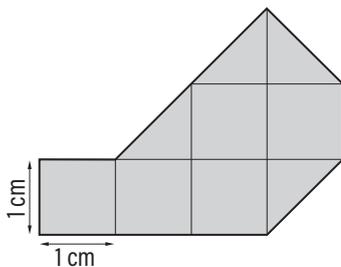
Use the protractor to measure the size of this angle.



150°

18. [Perimeter / Area]

Find the area of this shape.



7 cm²

19. [Shapes]

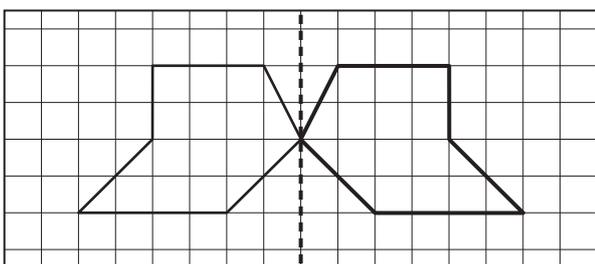
I am a quadrilateral. I have two pairs of equal sides. My diagonals cross at right angles. I have only one line of symmetry. What shape am I?

- A kite
- B parallelogram
- C rhombus

A

20. [Location / Transformation]

Redraw this polygon after reflecting it in the dotted line.



21. [Statistics / Probability]

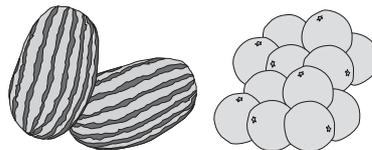
What is the height in metres of the Mutarazi Falls?

Waterfall	Heights of Major Waterfalls	
	Height	
	feet	metres
ANGEL FALLS (Venezuela)	3212	979
TUGELA FALLS (South Africa)	2800	850
UTIGORD FALLS (Norway)	2625	800
MONGE FALLS (Norway)	2540	774
MUTARAZI FALLS (Zimbabwe)	2499	762
YOSEMITE FALLS (U.S.A.)	2425	739

762 m

22. [Problem Solving 1]

Twelve oranges cost as much as two watermelons. How much are six oranges if one watermelon costs \$2.50?



\$ 2.50

23. [Problem Solving 2]

Fill in the missing digits in the sum.

$$\begin{array}{r}
 159 \\
 + \boxed{7}5\boxed{2} \\
 \hline
 9\boxed{1}1
 \end{array}$$

24. [Problem Solving 3]

Complete the multiplication table.

×	8	3	5
4	32	12	20
7	56	21	35
2	16	6	10





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

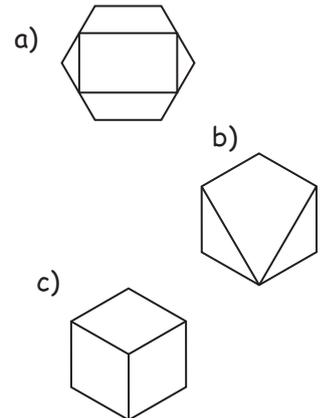
	4	1	3	5	7	2	8	9	6	10
× 9	36	9	27	45	63	18	72	81	54	90

4. [÷ Whole Numbers to 10]

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

JUST A TRACE

Which of these objects **cannot** be traced over, without lifting your pen? (Note: You may not trace over the same path twice.)



Answer: c)

5. [Large Number +]

$$\begin{array}{r} 357 \\ + 429 \\ \hline \end{array}$$

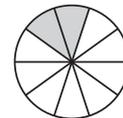
786

8. [Large Number ×, ÷]

$$\begin{array}{r} 605 \\ \times 7 \\ \hline \end{array}$$

4235

11. [Decimals / Fractions / Percentages]
Write 20% as a fraction in simplest form.



$\frac{2}{10}$

6. [Large Number -]

$$\begin{array}{r} 600 \\ - 4 \\ \hline \end{array}$$

596

9. [Decimals]
How much change will you receive from \$6.00 if you spend \$5.55?

\$0.45

12. [Place Value]
In which number does the digit 1 have a greater value?

- A 8.14
B 54.716

A

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 357 \\ \times 100 \\ \hline \end{array}$$

35700

10. [Fractions]
Complete to form equivalent fractions:

$$\frac{3}{4} = \frac{9}{\underline{12}}$$

13. [Operations]
 $11 + 9 - 9 =$

11

14. [Exploring Numbers]
Which list has only factors of 24?

- A 1, 2, 3, 5, 6
B 1, 3, 4, 8, 12

B

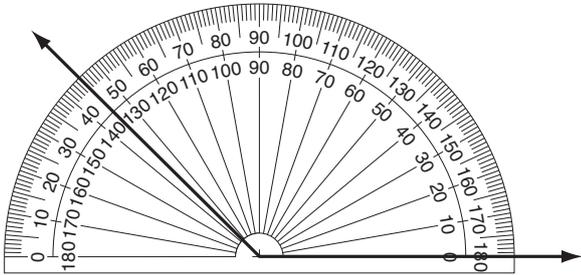
15. [Number Patterns / Equations]

10, 30, 90, 270, **810, 2430**

16. [Units of Measurement]
Convert to tonnes:

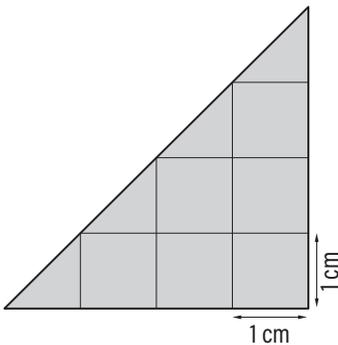
$$4000 \text{ kg} = \boxed{4 \text{ t}}$$

17. [Measuring]
Use the protractor to measure the size of this angle.



135°

18. [Perimeter / Area]
Find the area of this triangle.



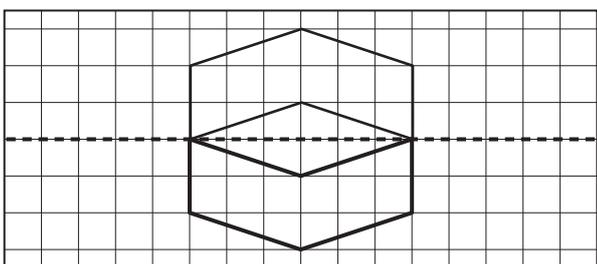
8 cm^2

19. [Shapes]
I am a quadrilateral. I have all sides equal in length. I have only two lines of symmetry. What shape am I?

- A rectangle
B rhombus
C square

B

20. [Location / Transformation]
Redraw this polygon after reflecting it in the dotted line.



21. [Statistics / Probability]
How far is it by road from Madrid to Paris?

EUROPEAN ROAD DISTANCES

	Athens	Barcelona	Copenhagen	Lisbon	Madrid	Milan	Munich	Paris	Vienna
Barcelona	3133								
Copenhagen	3276	2218							
Lisbon	4532	1304	2971						
Madrid	3949	636	2498	668					
Milan	2282	1014	1537	2250	1724				
Munich	2179	1365	1104	2507	2010	331			
Paris	3000	1033	1176	1799	1273	856	821		
Vienna	1991	1802	1455	2935	2409	898	428	1249	

Road distances between cities are in kilometres.

1273 km

22. [Problem Solving 1]
Eight books cost as much as two shirts. How much are six books if one shirt costs \$44?



$\$ 66$

23. [Problem Solving 2]
Fill in the missing digits in the sum.

$$\begin{array}{r} \boxed{4} \ 1 \\ \ 2 \ \boxed{6} \\ + \ 1 \ 3 \\ \hline 8 \ 0 \end{array}$$

24. [Problem Solving 3]
Complete the multiplication table.

×	2	9	4
5	10	45	20
3	6	27	12
6	12	54	24





Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	7	1	4	2	9	8	5	6	3	10
× 10	70	10	40	20	90	80	50	60	30	100

4. [÷ Whole Numbers to 10]

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

HIDDEN MEANINGS

man
board

tijustme

24 hours ALL work

Answer:
Man overboard
Just in time
All in a day's work

5. [Large Number +]

$$\begin{array}{r} 4192 \\ + 5052 \\ \hline 9244 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 51 \\ 5 \overline{) 255} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number

$$5\frac{7}{10} \text{ as a decimal.}$$

5.7

12. [Place Value]

$$1456.56 < 1456.65$$

True or false?

true

6. [Large Number -]

$$\begin{array}{r} 800 \\ - 43 \\ \hline 757 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 1.44 \\ 0.73 \\ + 2.88 \\ \hline 5.05 \end{array}$$

13. [Operations]

$$11 \times 8 \div 4 =$$

22

14. [Exploring Numbers]

Which number is a prime?

21, 22 or 23

23

7. [Powers of 10 ×, ÷]

$$6400 \div 100 =$$

64

10. [Fractions]
Simplify: $\frac{4}{8}$

$\frac{1}{2}$

15. [Number Patterns / Equations]

$$8 \times 3 = 24$$

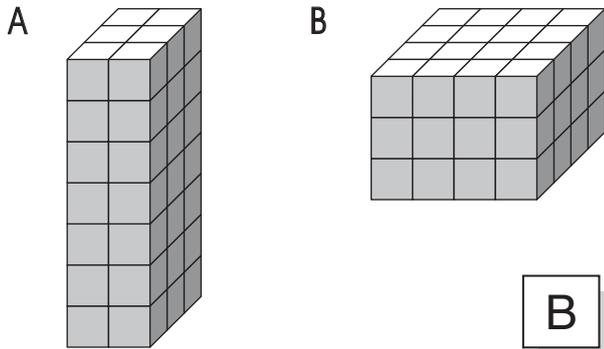
16. [Units of Measurement]

Convert to millilitres:

$$7.5 \text{ L} = \boxed{7500 \text{ mL}}$$

17. [Measuring]

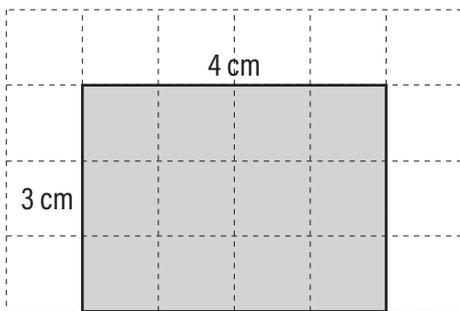
Which prism has the greater volume?



B

18. [Perimeter / Area]

Find the area of the shaded rectangle.



12 cm²

19. [Shapes]

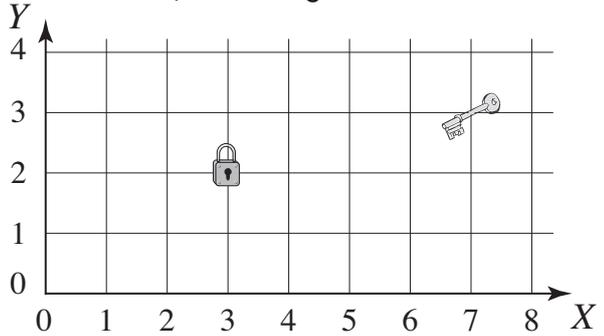
What is the name of this shape?

- A triangular prism
 - B rectangular pyramid
 - C square pyramid
 - D square prism
-

C

20. [Location / Transformation]

What are the coordinates of the lock and the key on the grid?



lock = **(3,2)** key = **(7,3)**

21. [Statistics / Probability]

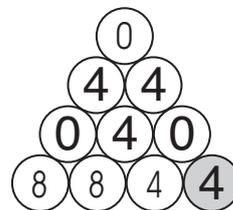
You have 20 batteries and 6 do not work. What is the chance that the first battery you choose will work?

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

C

22. [Problem Solving 1]

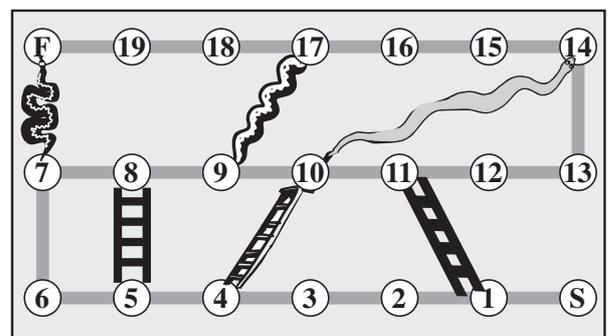
A single digit number belongs in each circle and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



4

23. [Problem Solving 2]

Starting at S, Helen's first three rolls of the die are five, five and four. What number is she now on?



9

24. [Problem Solving 3]

Each letter represents a different digit from 0 to 9. If E = 7, what number does BET stand for?

$$\begin{array}{r} \text{BET} \\ + \text{BET} \\ \hline \text{CENT} \end{array}$$

BET = 870



Name:

1. [+ Whole Numbers to 10]

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

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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

HIDDEN MEANINGS



Answer:
Forever on my mind
Square dance
Half an hour

5. [Large Number +]

$$\begin{array}{r} 4292 \\ + 5036 \\ \hline 9328 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 71 \\ 6 \overline{) 426} \end{array}$$

11. [Decimals / Fractions / Percentages]

Write the mixed number

$$3\frac{75}{100} \text{ as a decimal.}$$

3.75

12. [Place Value]

$$0.234 > 0.243$$

True or false?

false

6. [Large Number -]

$$\begin{array}{r} 700 \\ - 54 \\ \hline 646 \end{array}$$

9. [Decimals]

$$\begin{array}{r} 1.75 \\ + 5.45 \\ + 3.95 \\ \hline 11.15 \end{array}$$

13. [Operations]

$$6 \times 8 \div 4 =$$

12

14. [Exploring Numbers]

Which number is a prime?

28, 29 or 30

29

7. [Powers of 10 ×, ÷]

$$5200 \div 100 =$$

52

10. [Fractions]

Simplify: $\frac{10}{50}$

$\frac{1}{5}$

15. [Number Patterns / Equations]

$$6 \times 9 = 54$$

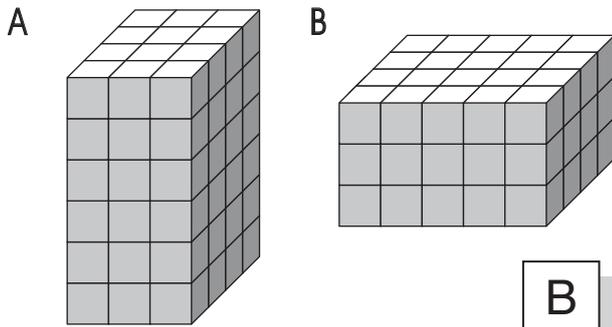
16. [Units of Measurement]

Convert to millilitres:

$$1.5 \text{ L} = \boxed{1500 \text{ mL}}$$

17. [Measuring]

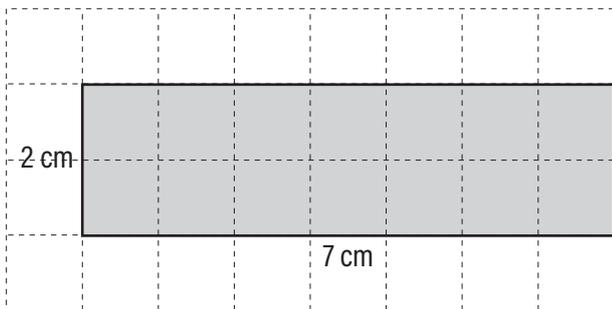
Which prism has the lesser volume?



B

18. [Perimeter / Area]

Find the area of the shaded rectangle.

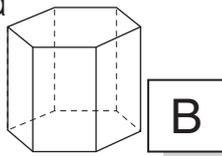


14 cm²

19. [Shapes]

What is the name of this shape?

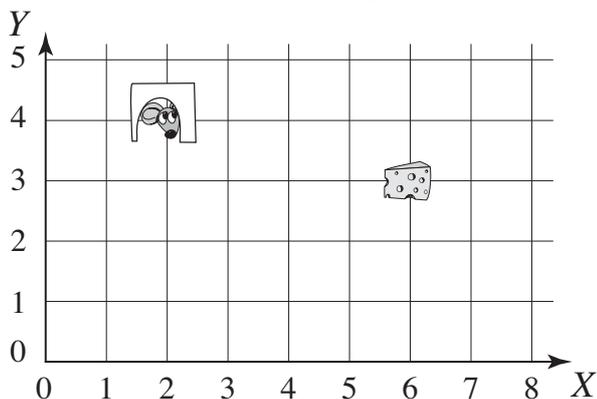
- A rectangular pyramid
- B hexagonal prism
- C hexagonal pyramid
- D rectangular prism



B

20. [Location / Transformation]

What are the coordinates of the mouse and the cheese on the grid?



mouse = **(2,4)** cheese = **(6,3)**

21. [Statistics / Probability]

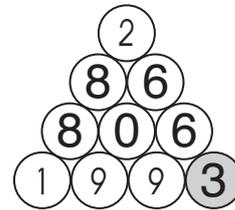
John has 3 red, 4 blue and 6 green paint cans in his shed. What is the chance that the first can he checks will be red?

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

B

22. [Problem Solving 1]

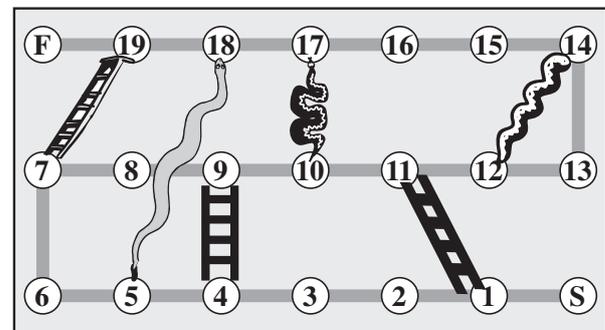
A single digit number belongs in each circle and it must equal the difference between the two numbers it sits on. What number belongs in the shaded circle?



3

23. [Problem Solving 2]

Starting at S, Kurt's first three rolls of the die are one, three and five. What number is he now on?



10

24. [Problem Solving 3]

Each letter represents a different digit from 0 to 9. What number does JOANA stand for?

$$\begin{array}{r} \text{JOANA} \\ \text{OANA} \\ + \text{ANA} \\ \hline 15755 \end{array}$$

JOANA = 12585



Name:

1. [+ Whole Numbers to 10]

	9	15	8	21	13	4	20	2	26	7
+ 10	19	25	18	31	23	14	30	12	36	17

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

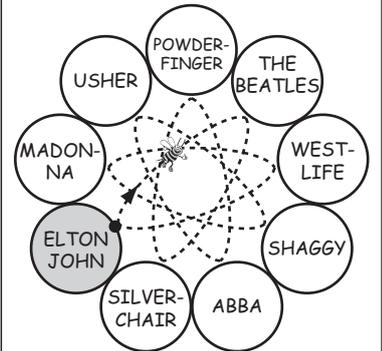
	6	2	1	3	10	4	7	8	5	9
× 4	24	8	4	12	40	16	28	32	20	36

4. [÷ Whole Numbers to 10]

	21	9	3	6	12	30	15	18	27	24
÷ 3	7	3	1	2	4	10	5	6	9	8

SPELLING BEE

Starting on Elton John, follow the Bee's path as you spell the name of one of the pop groups shown, one letter per bounce. The clever Bee will end up on the chosen pop group.



5. [Large Number +]

$$\begin{array}{r} 1814 \\ 734 \\ + 2420 \\ \hline 4968 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 136 \\ \times 7 \\ \hline 952 \end{array}$$

12. [Place Value]

Place in order from largest to smallest:

2.6, 2.62, 6.2, 6.26, 2.66

6.26, 6.2, 2.66, 2.62, 2.6

6. [Large Number -]

$$\begin{array}{r} 643 \\ - 268 \\ \hline 375 \end{array}$$

9. [Decimals]

$$5 - 0.43 = 4.57$$

13. [Operations]

$$9 - 6 \div 3 = 7$$

10. [Fractions]

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

14. [Exploring Numbers]

Complete the missing factor in the prime factorisation of 30:

$$30 = 2 \times 3 \times 5$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 30 \\ \times 100 \\ \hline 3000 \end{array}$$

11. [Decimals / Fractions / Percentages]

Write 50% as a decimal. 0.5

15. [Number Patterns / Equations]

$$32 \div 8 = 4$$

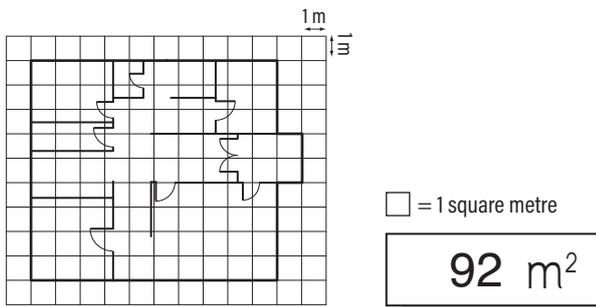
16. [Units of Measurement]
Convert to hours:

$$480 \text{ min} = \boxed{8 \text{ h}}$$

17. [Measuring]
The soccer final began at 2:05 am and finished an hour and fifty minutes later. At what time did the soccer final finish?

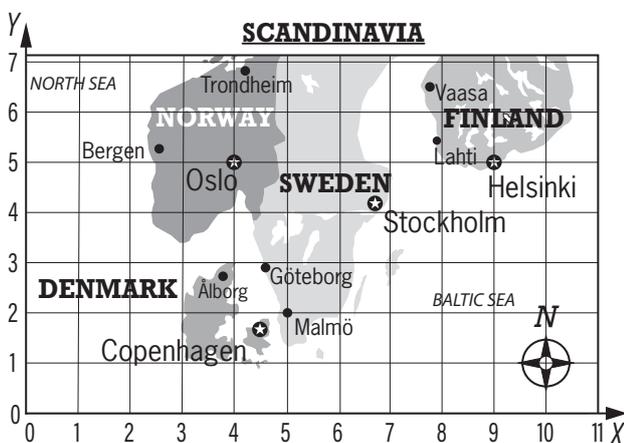
$$\boxed{3 : 55 \text{ am}}$$

18. [Perimeter / Area]
Use the grid and scale to find the total area of this apartment plan.



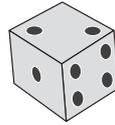
19. [Shapes]
Which angle is a right angle?
- A B C C

20. [Location / Transformation]
From Malmo you move one unit west and three units north on the grid. Which city are you in and what are the coordinates of this city?



$$\text{city: } \boxed{\text{Oslo}} \quad \boxed{(4, 5)}$$

21. [Statistics / Probability]
What is the probability of rolling an even number with one roll of a die?
[Give the answer as a fraction in its simplest form.]



$$\boxed{\frac{1}{2}}$$

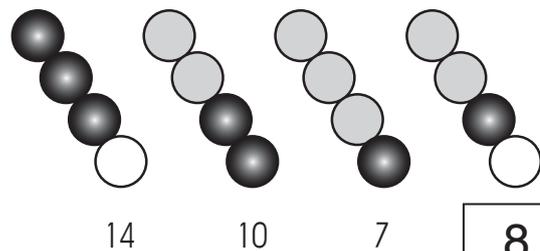
22. [Problem Solving 1]
Jacki looked at the page numbers on the open book in front of her. The page number on the left and the right added to 111. What were the page numbers?

$$\boxed{55 \text{ and } 56}$$

23. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:
3 digits: 352, 355, 417, 469, 478, 572, 624, 863
4 digits: 4963, 7343

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

24. [Problem Solving 3]
Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?





Name:

1. [+ Whole Numbers to 10]

	6	10	19	28	11	24	13	17	25	12
+ 6	12	16	25	34	17	30	19	23	31	18

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

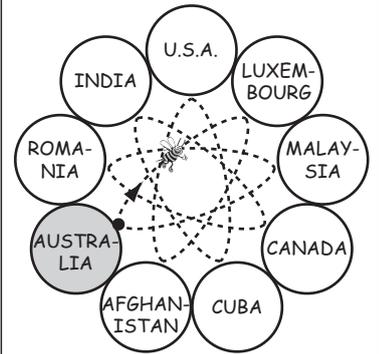
	3	7	6	4	9	8	5	2	1	10
× 7	21	49	42	28	63	56	35	14	7	70

4. [÷ Whole Numbers to 10]

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

SPELLING BEE

Starting on Australia, follow the Bee's path as you spell the name of one of the countries shown, one letter per bounce. The clever Bee will end up on the chosen country.



5. [Large Number +]

$$\begin{array}{r} 2916 \\ 543 \\ + 1220 \\ \hline 4679 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 142 \\ \times 9 \\ \hline 1278 \end{array}$$

12. [Place Value]

Place in order from largest to smallest:

8.98, 9.89, 8.89, 9.88, 8.99

9.89, 9.88, 8.99, 8.98, 8.89

6. [Large Number -]

$$\begin{array}{r} 563 \\ - 376 \\ \hline 187 \end{array}$$

9. [Decimals]

$$4 - 0.27 = 3.73$$

13. [Operations]

$$12 - 8 \div 4 = 10$$

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 80 \\ \times 100 \\ \hline 8000 \end{array}$$

10. [Fractions]

$$\frac{7}{13} - \frac{3}{13} = \frac{4}{13}$$

14. [Exploring Numbers]

Complete the missing factor in the prime factorisation of 45:

$$45 = 3 \times 3 \times 5$$

11. [Decimals / Fractions / Percentages]

Write 10% as a decimal. 0.1

15. [Number Patterns / Equations]

$$35 \div 7 = 5$$

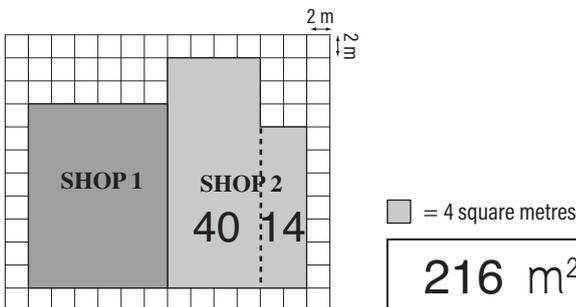
16. [Units of Measurement]
Convert to hours:

$$180 \text{ min} = \boxed{3 \text{ h}}$$

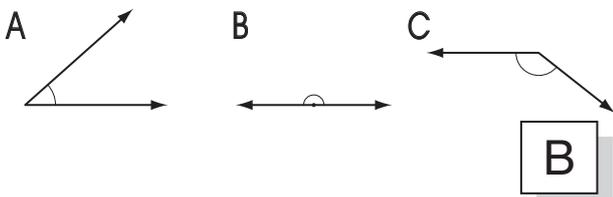
17. [Measuring]
Lulu went to camp on the 8:30 am train. The trip took 8 hours. At what time did she reach her destination?

4 : 30 pm

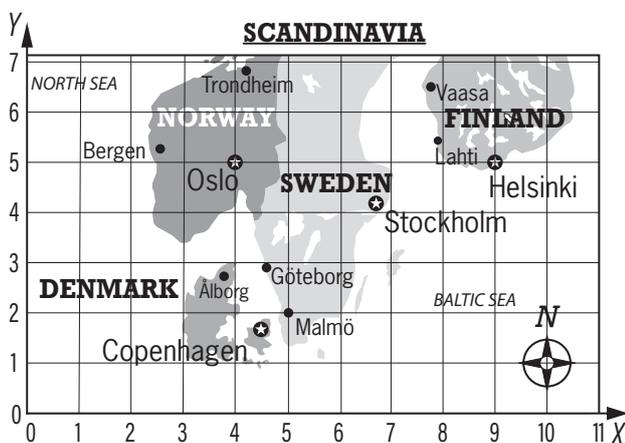
18. [Perimeter / Area]
Use the grid and scale to find the total floor area of SHOP 2.



19. [Shapes]
Which angle is a straight angle?

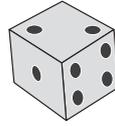


20. [Location / Transformation]
From Malmo you move four units east and three units north on the grid. Which city are you in and what are the coordinates of this city?



city: **Helsinki** (**9** , **5**)

21. [Statistics / Probability]
What is the probability of rolling a number greater than 2 with one roll of a die? [Give the answer as a fraction in its simplest form.]



$\frac{2}{3}$

22. [Problem Solving 1]
The sum of two consecutive whole numbers is 49. What are the two numbers?

24 and 25

23. [Problem Solving 2]
Fill in the cross number puzzle using the following numbers:

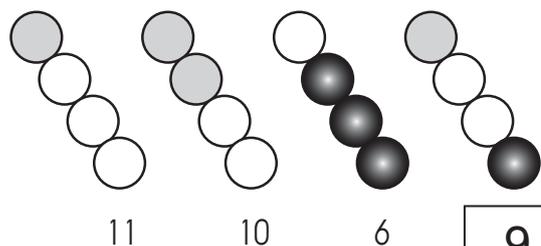
2 digits: 50

3 digits: 121, 186, 202, 323, 351, 500, 504

4 digits: 1800, 2000

				3		1
	1		2	0	2	
1	8	0	0		3	5
	6		0			0
		5	0		5	0
						4

24. [Problem Solving 3]
Each bead has a value according to its colour. The values of the first three strings of beads are given. What is the value of the last string?





Name:

1. [+ Whole Numbers to 10]

	27	16	3	20	18	5	14	22	11	29
+ 7	34	23	10	27	25	12	21	29	18	36

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

	12	3	9	15	21	6	24	27	18	30
÷ 3	4	1	3	5	7	2	8	9	6	10

WORD CODE

Each letter in the code below represents a different digit. When a letter appears more than once, it always represents the same digit.

Try to find the code.

	C	A	T	
+	D	O	G	
<hr/>				
	P	E	T	S

	8			
+	D	O	4	G
P	E	T	S	5

1	
2	
3	
4	O
5	S
6	
7	
8	C
9	

Answer: PGTOSDCA

5. [Large Number +]

$$\begin{array}{r} 2407 \\ + 1835 \\ \hline 4242 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \boxed{48} \\ 6 \overline{) 288} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.3	$\frac{30}{100}$ OR $\frac{3}{10}$	30%

6. [Large Number -]

$$\begin{array}{r} 452 \\ - 358 \\ \hline 94 \end{array}$$

9. [Decimals]

The price of a lamp is \$74 including GST. If the price before GST is \$67.27, what is the GST?

$$\boxed{\$ 6.73}$$

12. [Place Value]

Round 5.087 to the nearest hundredth.

$$\boxed{5.09}$$

13. [Operations]

$$6 + 7 - 3 - 1 =$$

$$\boxed{9}$$

14. [Exploring Numbers]

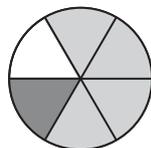
Which of the numbers 2, 3, 4, 5 and 6 are factors of 6040?

$$\boxed{2, 4, 5}$$

7. [Powers of 10 ×, ÷]

$$21000 \div 1000 =$$

$$\boxed{21}$$



10. [Fractions]

Shade the diagram to add the fractions.

$$\frac{2}{3} + \frac{1}{6} = \boxed{\frac{5}{6}}$$

15. [Number Patterns / Equations]

$$2, 14, 24, 32, 38, \boxed{42, 44}$$

16. [Units of Measurement]
Which is greater?

600 cm or 70 000 mm **70 000 mm**

17. [Measuring]

Puffing Billy is departing Belgrave station at 10:30 am. How long does it take to arrive at Menzies Creek station?

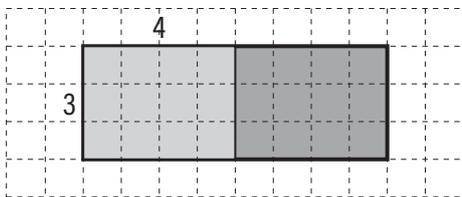
23 min

FROM BELGRAVE

Belgrave dep:	10.30	11.10	12.15	1.15	2.30
Menzies Crk arr:	10.53	11.33	12.47	1.47	2.53
Menzies Crk dep:	11.05	11.38	1.05	1.55	3.00
Emerald dep:	11.20	11.53	1.15	2.10	3.20
Lakeside arr:	11.30	12.08	1.30	2.20	3.30
Lakeside dep:	...	12.20	...	...	...
Cockatoo dep:	...	12.35	...	...	...
Gembrook arr:	...	1.00	...	...	...

18. [Perimeter / Area]

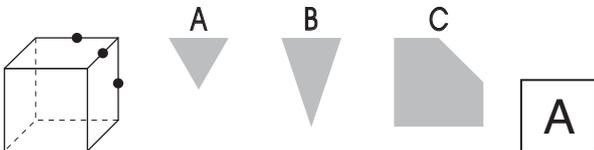
Double only the length of this rectangle. How many times bigger is the area of the new rectangle compared to the original rectangle?



2

19. [Shapes]

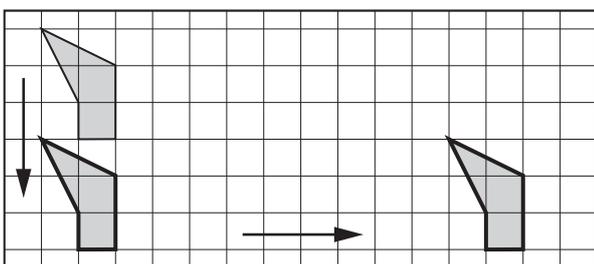
Which shape shows the cross section produced by slicing through the points indicated on the cube?



A

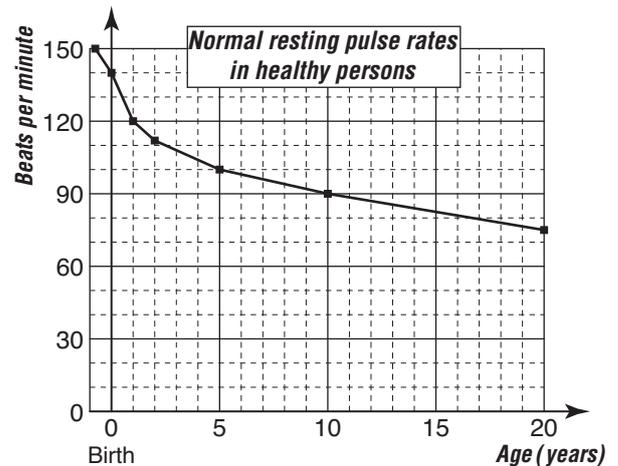
20. [Location / Transformation]

Redraw this shape after translating it 3 units down and 11 units to the right.



21. [Statistics / Probability]

During which year of a young person's life does his or her resting pulse rate decrease the most?



1st year

22. [Problem Solving 1]

Fill in the missing digits in the subtraction.

$$\begin{array}{r} \boxed{7} \ 5 \\ - \ 3 \ \boxed{1} \\ \hline 4 \ 4 \end{array}$$

23. [Problem Solving 2]

I think of a number, multiply it by 5 and then subtract 2. If the result is 28, what was the original number?

6

24. [Problem Solving 3]

The table shows the Group H team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Portugal play in its third round robin match? [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 match.]

GROUP H TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
Portugal	2	2	0	0	5	2	6
Ghana	2	1	0	1	5	5	3
South Korea	2	0	1	1	2	3	1
Uruguay	2	0	1	1	0	2	1

Portugal vs **South Korea**





Name:

1. [+ Whole Numbers to 10]

	8	23	4	10	15	9	21	12	26	17
+ 4	12	27	8	14	19	13	25	16	30	21

2. [- Whole Numbers to 10]

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

3. [× Whole Numbers to 10]

	8	6	5	3	4	1	2	10	9	7
× 3	24	18	15	9	12	3	6	30	27	21

4. [÷ Whole Numbers to 10]

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

WORD CODE

Each letter in the code below represents a different digit. When a letter appears more than once, it always represents the same digit. Try to find the code.

$$\begin{array}{r} \text{S I N G} \\ + \text{H A P P Y} \\ \hline \text{S O N G S} \end{array}$$

	S	I	N	G	
+	H	A	P	P	Y
	S	O	N	G	S

0	
1	
2	H
3	
4	
5	
6	
7	N
8	
9	Y

Answer: IOHSG-PNAY

5. [Large Number +]

$$\begin{array}{r} 3573 \\ + 4809 \\ \hline 8382 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 98 \\ 4 \overline{) 392} \end{array}$$

11. [Decimals / Fractions / Percentages]

Complete the table:

Decimal	Fraction	Percentage
0.9	$\frac{90}{100}$ OR $\frac{9}{10}$	90%

6. [Large Number -]

$$\begin{array}{r} 573 \\ - 477 \\ \hline 96 \end{array}$$

9. [Decimals]

The price of a shirt is \$240 including GST. If the price before GST is \$218.18, what is the GST?

$$\boxed{\$ 21.82}$$

12. [Place Value]

Round 2.673 to the nearest hundredth.

$$\boxed{2.67}$$

13. [Operations]

$$9 - 5 + 5 - 3 =$$

$$\boxed{6}$$

14. [Exploring Numbers]

Which of the numbers 2, 3, 4, 5, 6 and 10 are factors of 3765?

$$\boxed{3, 5}$$

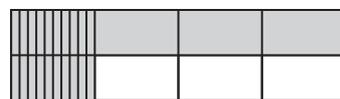
7. [Powers of 10 ×, ÷]

$$31000 \div 1000 =$$

$$\boxed{31}$$

10. [Fractions]

Shade the diagram to subtract the fractions.



$$\frac{5}{8} - \frac{1}{4} = \boxed{\frac{3}{8}}$$

15. [Number Patterns / Equations]

$$14, 25, 34, 41, 46, \boxed{49, 50}$$

16. [Units of Measurement]
Which is greater?
45 kg or 50000 g

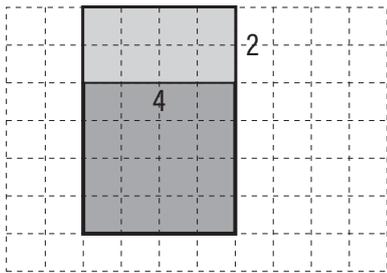
50 000 g

17. [Measuring]
What time does the 2:00 pm show of 'Titanic 2' finish?
Use the 12-hour time format.

4 : 30 pm

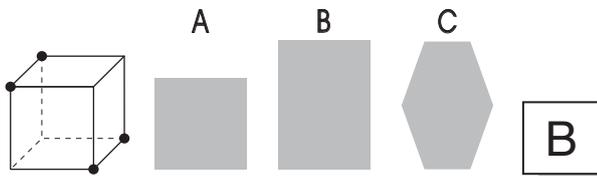
CINEMA & MOVIE	LENGTH	STARTING TIMES
1 - Titanic 2	150 min	11:00 am, 2:00 pm
2 - Home Alone VII	90 min	10:15 am, 2:00 pm
2 - Jurassic Ark	75 min	12:15 pm, 4:00 pm
3 - Star Wars 2030	120 min	10:00 am, 12:30 pm 3:00 pm

18. [Perimeter / Area]
Triple only the width of this rectangle.
How many times bigger is the area of the new rectangle compared to the original rectangle?



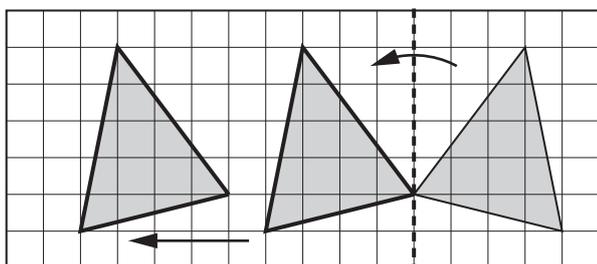
3

19. [Shapes]
Which shape shows the cross section produced by slicing through the points indicated on the cube?

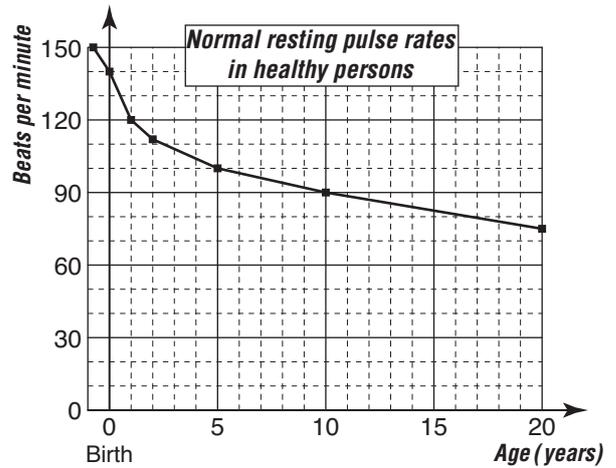


B

20. [Location / Transformation]
Redraw this shape after reflecting it in the dotted line and then translating it 5 units to the left.



21. [Statistics / Probability]
At what age does the normal resting pulse first reaches 90 beats per minute?



10 years

22. [Problem Solving 1]
Fill in the missing digits in the subtraction.

$$\begin{array}{r} \boxed{7} \ 8 \\ - \ 4 \ \boxed{4} \\ \hline 3 \ 4 \end{array}$$

23. [Problem Solving 2]
I think of a number, subtract 11 and then multiply by 6. If the result is 24, what was the original number?

15

24. [Problem Solving 3]
The table shows the Group D team standings after 2 rounds of the 2022 Soccer World Cup. Which country did Tunisia play in its third round robin match? [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 match.]

GROUP D TEAMS	MP	W	D	L	GF	GA	Pts
	Matches Played	Wins	Draws	Losses	Goals For	Goals Against	Points
France	2	2	0	0	6	2	6
Australia	2	1	0	1	2	4	3
Denmark	2	0	1	1	1	2	1
Tunisia	2	0	1	1	0	1	1

Tunisia vs France



Name:

1. [+ Whole Numbers to 10]

	17	8	29	6	15	34	10	21	32	13
+ 10	27	18	39	16	25	44	20	31	42	23

2. [- Whole Numbers to 10]

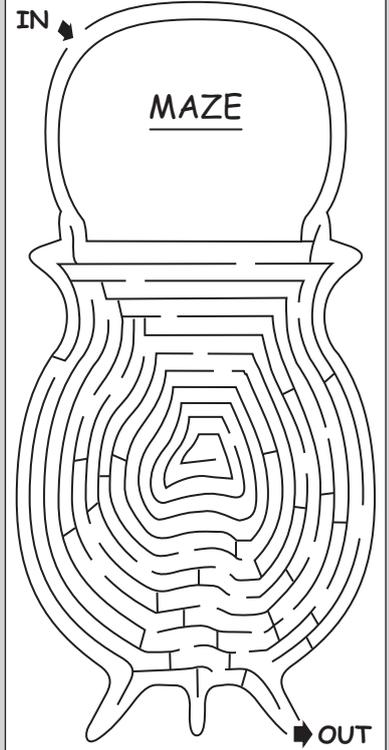
	16	11	13	10	17	38	19	14	15	12
- 8	8	3	5	2	9	30	11	6	7	4

3. [× Whole Numbers to 10]

	5	3	2	4	10	1	8	9	6	7
× 5	25	15	10	20	50	5	40	45	30	35

4. [÷ Whole Numbers to 10]

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



5. [Large Number +]

$$\begin{array}{r} 2676 \\ + 570 \\ \hline 3246 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 89 \\ \times 74 \\ \hline 356 \\ 6230 \\ \hline 6586 \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 40% of \$100.

\$ 40

6. [Large Number -]

$$\begin{array}{r} 736 \\ - 79 \\ \hline 657 \end{array}$$

9. [Decimals]

8.31 × 10 =

83.1

12. [Place Value]

Estimate the sum of 8.09 and 7.6 by rounding to the nearest whole number before adding.

16

13. [Operations]

(3 + 6) × 5 =

45

14. [Exploring Numbers]

Write as a positive or negative number:
six hundred metres above sea level.

+600

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 200 \\ \times 100 \\ \hline 20000 \end{array}$$

10. [Fractions]

Of the 12 teachers at the school, two thirds are women. How many teachers are women?

$\frac{2}{3}$ of 12 =

8

15. [Number Patterns / Equations]

3, 4.2, 5.4, 6.6,

7.8, 9

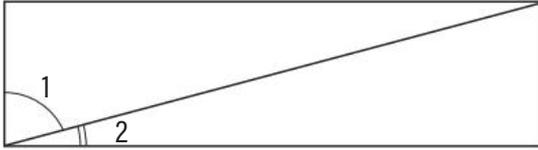
16. [Units of Measurement]

Circle the shortest distance.

40 m 1 km 5000 cm

17. [Measuring]

Measure the marked angles below:

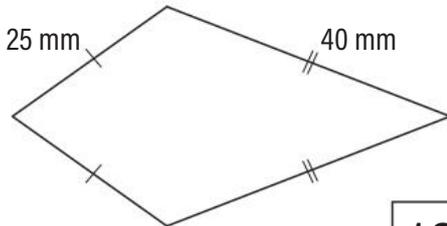


Angle 1 = **75°** Angle 2 = **15°**

The sum of these angles is: **90°**

18. [Perimeter / Area]

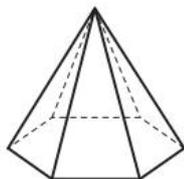
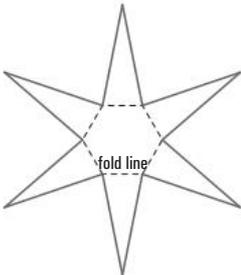
Find the perimeter of the kite.



130 mm

19. [Shapes]

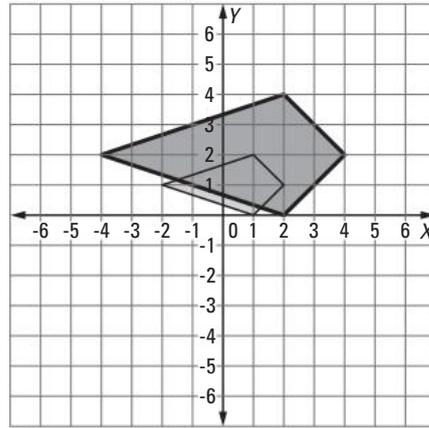
What 3-dimensional shape can this net be used to make?



hexagonal pyramid

20. [Location / Transformation]

Redraw this kite after multiplying its coordinates by 2 (enlargement of factor 2).

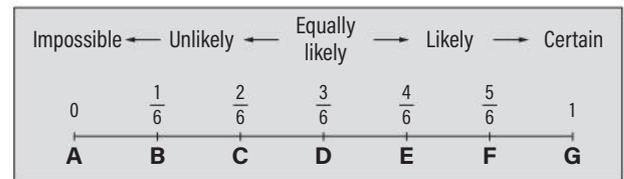


21. [Statistics / Probability]

On the probability scale below, which letter A to G best represents the probability of this event?

"A number greater than 6 turns up when a die is rolled."

A



22. [Problem Solving 1]

Fill in the missing number.

48 $\div 4 - 3 = 9$

23. [Problem Solving 2]

Fill in the magic square.

[Hint: Every row, column and diagonal has the same sum.]

4	12	5
8	7	6
9	2	10

24. [Problem Solving 3]

From the diagram, calculate the cost of one pair of trousers.

 +  = \$510

 +  = \$380

\$ 130





Name:

1. [+ Whole Numbers to 10]

	33	20	9	14	31	25	38	7	12	16
+ 4	37	24	13	18	35	29	42	11	16	20

2. [- Whole Numbers to 10]

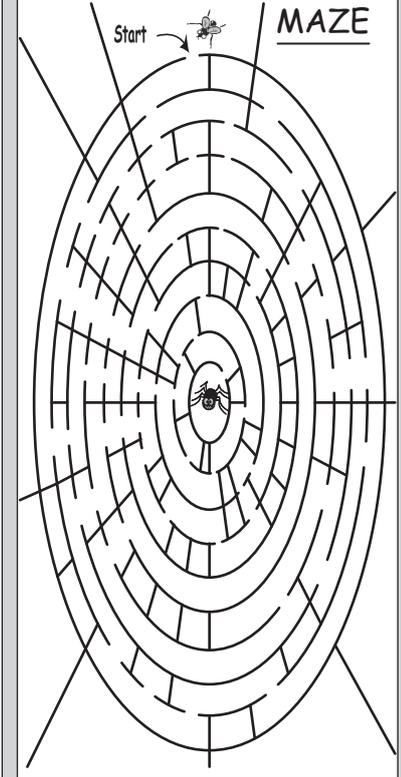
	35	12	13	27	11	10	9	14	18	6
- 4	31	8	9	23	7	6	5	10	14	2

3. [× Whole Numbers to 10]

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

4. [÷ Whole Numbers to 10]

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



5. [Large Number +]

$$\begin{array}{r} 3980 \\ + 387 \\ \hline 4367 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} 77 \\ \times 26 \\ \hline 462 \\ 1540 \\ \hline 2002 \end{array}$$

11. [Decimals / Fractions / Percentages]

Calculate 60% of \$100.

\$ 60

6. [Large Number -]

$$\begin{array}{r} 1504 \\ - 238 \\ \hline 1266 \end{array}$$

9. [Decimals]

2.74 × 10 =

27.4

12. [Place Value]

Estimate the sum of 7.2 and 9.65 by rounding to the nearest whole number before adding.

17

13. [Operations]

(4 + 3) × 3 =

21

7. [Powers of 10 ×, ÷]

$$\begin{array}{r} 40 \\ \times 1000 \\ \hline 40000 \end{array}$$

10. [Fractions]

Three tenths of the 40 days of the summer holiday are spent overseas. How many days are spent overseas?

12

14. [Exploring Numbers]

Write as a positive or negative number:
twelve degrees below zero.

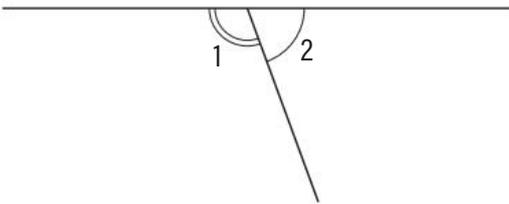
-12

15. [Number Patterns / Equations]

2, 3.5, 5, 6.5, 8, **9.5, 11**

16. [Units of Measurement]
Circle the greatest mass.
1 kg **4000 t** 5000 g

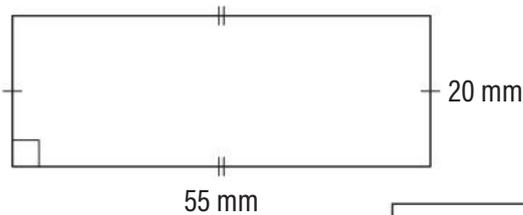
17. [Measuring]
Measure the marked angles below:



Angle 1 = **110°** Angle 2 = **70°**

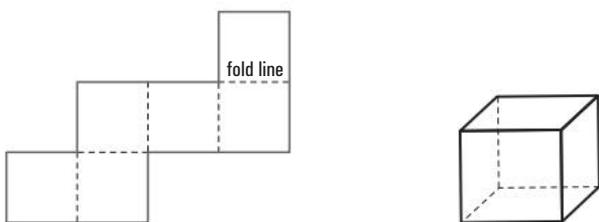
The sum of these angles is: **180°**

18. [Perimeter / Area]
Find the perimeter of the rectangle.



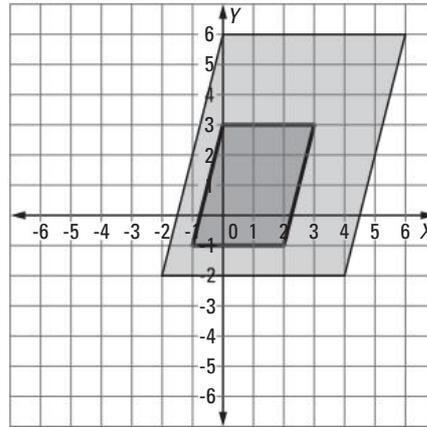
150 mm

19. [Shapes]
What 3-dimensional shape can this net be used to make?

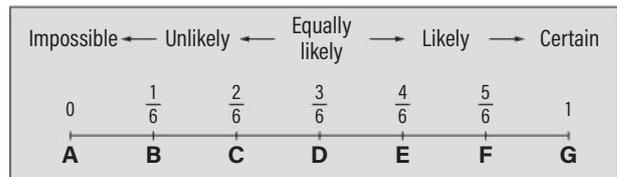


cube

20. [Location / Transformation]
Redraw this parallelogram after dividing its coordinates by 2 (reduction of factor 2).



21. [Statistics / Probability]
On the probability scale below, which letter A to G best represents the probability of this event?
"A number less than 5 turns up when a die is rolled." **E**



22. [Problem Solving 1]
Fill in the missing number.

35 $\div 5 - 4 = 3$

23. [Problem Solving 2]
Fill in the magic square.
[Hint: Every row, column and diagonal has the same sum.]

9	2	10
8	7	6
4	12	5

24. [Problem Solving 3]
From the diagram, calculate the cost of one shirt.

+ = \$410

+ = \$450

\$ 40





Name:

1. [+ Whole Numbers to 10]

	5	11	24	19	37	18	30	23	12	36
+ 6	11	17	30	25	43	24	36	29	18	42

2. [- Whole Numbers to 10]

	11	8	24	13	12	30	6	7	5	29
- 4	7	4	20	9	8	26	2	3	1	25

3. [× Whole Numbers to 10]

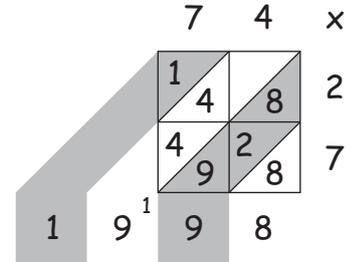
	7	5	6	4	1	8	2	9	10	3
× 6	42	30	36	24	6	48	12	54	60	18

4. [÷ Whole Numbers to 10]

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

CHINESE LATTICE

Multiply 74×27 using the Chinese Lattice method.



- Try
- a) 12×78
 - b) 62×26
 - c) 94×125

Answers: (a) 936 (b) 1612 (c) 11750

5. [Large Number +]

$$\begin{array}{r} 4467 \\ 2022 \\ + 584 \\ \hline 7073 \end{array}$$

8. [Large Number \times, \div]

$$\begin{array}{r} 245 \\ 7 \overline{) 1715} \end{array}$$

12. [Place Value]

Estimate the total cost by rounding to the nearest dollar:
 $\$15.25 + \$3.50 + \$9.75 + \8.25

$$\boxed{\$37.00}$$

9. [Decimals]

$$\begin{array}{r} 1.04 \\ \times 2 \\ \hline 2.08 \end{array}$$

13. [Operations]

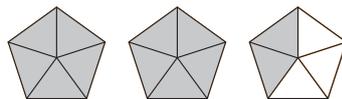
$$2 + 3 \times (5 - 2) = \boxed{11}$$

6. [Large Number -]

$$\begin{array}{r} 4247 \\ - 869 \\ \hline 3378 \end{array}$$

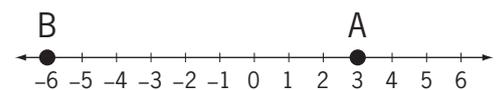
10. [Fractions]

Shade the pentagons to show that $2\frac{2}{5} = \frac{12}{5}$



14. [Exploring Numbers]

What numbers are shown at points A and B?



$$\boxed{A = 3 \quad B = -6}$$

7. [Powers of 10 \times, \div]

$$61000 \div 100 = \boxed{610}$$

11. [Decimals / Fractions / Percentages]

If a \$600 watch is reduced by 20%, what is the discount? $\boxed{\$120}$

15. [Number Patterns / Equations]

$$\frac{1}{2} \text{ of } \boxed{50} = 25$$

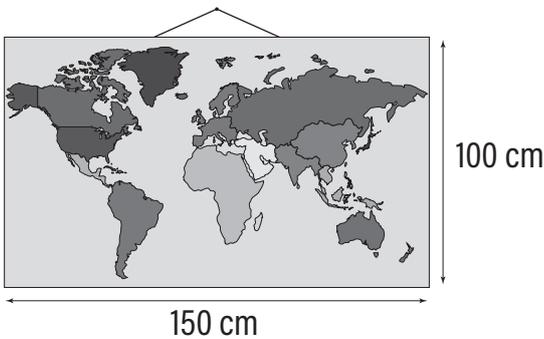
16. [Units of Measurement]
How many 200 mL jugs of water are necessary to fill up a 2 L bottle?

10

17. [Measuring]
Jim dropped off the prescription at the pharmacy at 4:45 pm. He was told it would be ready in 30 minutes. What time would that be? Answer using the 12-hour time format.

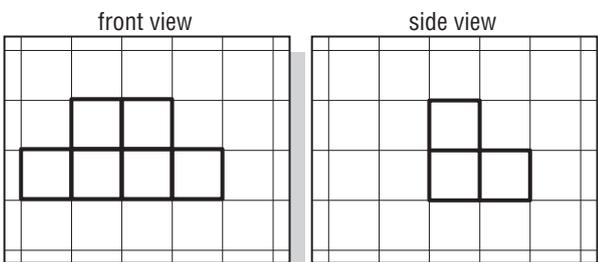
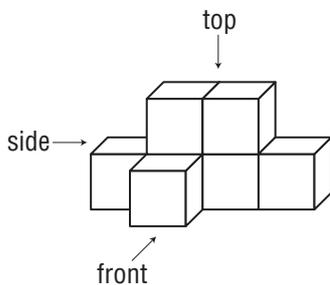
5 : 15 pm

18. [Perimeter / Area]
Find the area of this wall map.

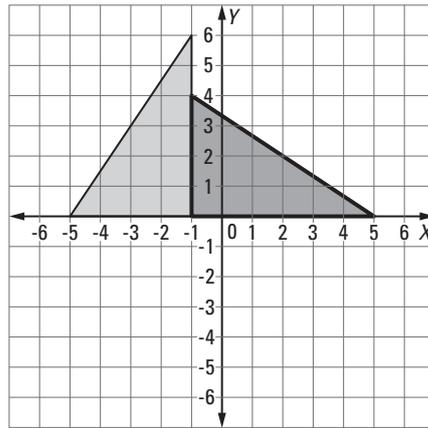


15000 cm²

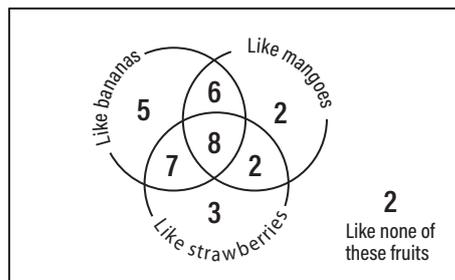
19. [Shapes]
Draw the front and side views of this 3-dimensional shape.



20. [Location / Transformation]
Redraw this triangle after rotating it 90° clockwise around the point of coordinates (-1,0).



21. [Probability / Statistics]
Of those surveyed at the market, how many children like both mangoes and strawberries, but not bananas?



2

22. [Problem Solving 1]
Which deal costs less per litre?

- A \$1.50 for 250 mL
B \$5 for 1 L

B

23. [Problem Solving 2]
Each flag represents a different digit. Can you find the solution to the cipher?

$$7 + \begin{array}{|c|} \hline \diagup \\ \hline \end{array} = \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} \begin{array}{|c|} \hline \diagdown \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \diagup \\ \hline \end{array} \times \begin{array}{|c|} \hline \hline \\ \hline \end{array} = \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} \begin{array}{|c|} \hline \diagup \\ \hline \end{array}$$

$\begin{array}{|c|} \hline \diagup \\ \hline \end{array} = 2, \begin{array}{|c|} \hline \hline \\ \hline \end{array} = 3, \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} = 4, \begin{array}{|c|} \hline \diagdown \\ \hline \end{array} = 1$

24. [Problem Solving 3]
Fill in the missing digits in the multiplication.

$$\begin{array}{r} 1 \quad \boxed{3} \quad 4 \\ \times \quad \quad \quad 7 \\ \hline \boxed{9} \quad \boxed{3} \quad \boxed{8} \end{array}$$



Name:

1. [+ Whole Numbers to 10]

	26	34	13	20	28	31	5	27	9	12
+ 8	34	42	21	28	36	39	13	35	17	20

2. [- Whole Numbers to 10]

	8	15	26	14	12	30	9	13	7	31
- 6	2	9	20	8	6	24	3	7	1	25

3. [× Whole Numbers to 10]

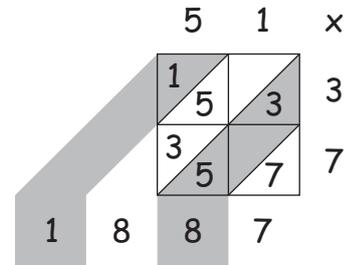
	3	10	7	1	4	2	9	8	5	6
× 9	27	90	63	9	36	18	81	72	45	54

4. [÷ Whole Numbers to 10]

	25	10	5	50	15	35	30	20	45	40
÷ 5	5	2	1	10	3	7	6	4	9	8

CHINESE LATTICE

Multiply 51 × 37 using the Chinese Lattice method.



Try a) 21 × 67
b) 45 × 54
c) 73 × 183

Answers: (a) 1407 (b) 2430 (c) 13359

5. [Large Number +]

$$\begin{array}{r} 5655 \\ 1041 \\ + 357 \\ \hline 7053 \end{array}$$

8. [Large Number ×, ÷]

$$\begin{array}{r} \boxed{642} \\ 5 \overline{) 3210} \end{array}$$

12. [Place Value]

Estimate the total cost by rounding to the nearest dollar:

$$\$16.35 + \$3.05 + \$7.50 + \$9.25$$

$$\boxed{\$36.00}$$

9. [Decimals]

$$\begin{array}{r} 2.13 \\ \times 3 \\ \hline \end{array}$$

13. [Operations]

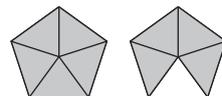
$$7 + 3 \times (6 - 4) = \boxed{13}$$

6. [Large Number -]

$$\begin{array}{r} 8366 \\ - 597 \\ \hline 7769 \end{array}$$

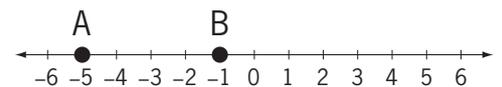
10. [Fractions]

Shade the pentagons to show that $1\frac{4}{5} = \frac{9}{5}$



14. [Exploring Numbers]

What numbers are shown at points A and B?



$$\boxed{A = -5 \quad B = -1}$$

7. [Powers of 10 ×, ÷]

$$9000 \div 100 = \boxed{90}$$

11. [Decimals / Fractions / Percentages]

If a \$400 printer is reduced by 20%, what is the discount? $\boxed{\$80}$

15. [Number Patterns / Equations]

$$\frac{1}{4} \text{ of } \boxed{40} = 10$$

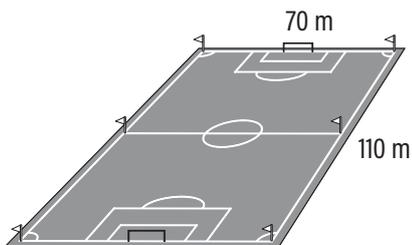
16. [Units of Measurement]
One lap of an athletics track is 400 m long. How many laps of the oval must an athlete complete to run 2 km?

5

17. [Measuring]
Yuma dropped off the prescription at the pharmacy at 6:55 pm. He was told it would be ready in 20 minutes. What time would that be? Answer using the 12-hour time format.

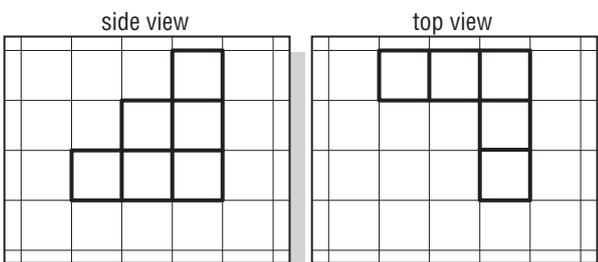
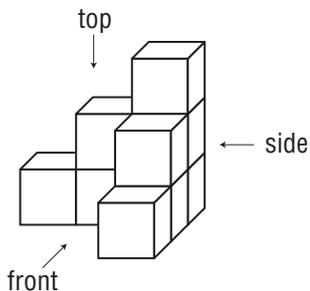
6 : 15 pm

18. [Perimeter / Area]
Find the area of this rectangular football field.

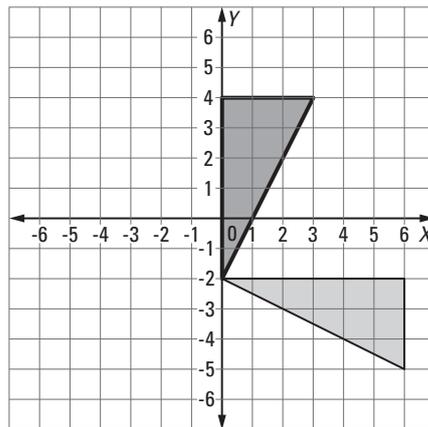


7700 m²

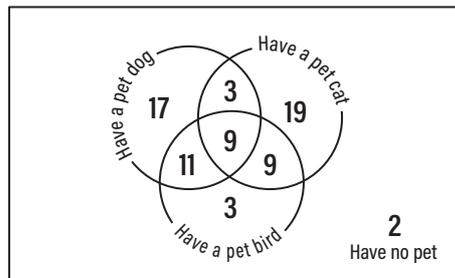
19. [Shapes]
Draw the side and top views of this 3-dimensional shape.



20. [Location / Transformation]
Redraw this triangle after rotating it 90° anticlockwise around the point of coordinates (0, -2).



21. [Probability / Statistics]
Of those surveyed at the pet shop, how many families have both a pet cat and a pet dog, but not a pet bird?



3

22. [Problem Solving 1]
Which deal costs less per gram?

- A \$3 for 300 g
B \$8 for 900 g

B

23. [Problem Solving 2]
Each flag represents a different digit. Can you find the solution to the cipher?

$$6 + \text{flag} = \text{flag} \text{ flag}$$

$$\text{flag} \times \text{flag} = \text{flag} \text{ flag}$$

▢ = 0 , ▣ = 2 , ◊ = 1 , ⊗ = 5

24. [Problem Solving 3]
Fill in the missing digits in the multiplication.

$$\begin{array}{r}
 1 \text{ } \boxed{2} \text{ } 3 \\
 \times \quad \quad 6 \\
 \hline
 \boxed{7} \text{ } 3 \text{ } \boxed{8}
 \end{array}$$



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 - 18



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 & ALGEBRA	1. [+ Whole Numbers to 10]
	2. [- Whole Numbers to 10]
	3. [× Whole Numbers to 10]
	4. [÷ Whole Numbers to 10]
	5. [Large Number +]
	6. [Large Number -]
	7. [Powers of 10 ×, ÷]
	8. [Large Number ×, ÷]
	9. [Decimals]
	10. [Fractions]
	11. [Dec. / Frac. / Percentages]
	12. [Place Value]
	13. [Operations]
	14. [Exploring Numbers]
	15. [Number Patterns / Equations]
MEASUREMENT & SPACE	16. [Units of Measurement]
	17. [Measuring]
	18. [Perimeter / Area]
	19. [Shapes]
	20. [Location / Transformation]
S & P	21. [Statistics / Probability]
PROBLEM SOLVING	22. [Problem Solving 1]
	23. [Problem Solving 2]
	24. [Problem Solving 3]
Total Correct	

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.3,4,5
4	4	4	4	4.1,2
5	5	5	5	5.1
6	6	6	6	6.1
7	7	7	7	7.1,2
8	8	8	8	8.1,2
9	9	9	9	9.2
10	10	10	10	10.1,2
11	11	11	11	11.5
12	12	12	12	12.1
13	13	13	13	13.1,2
14	14	14	14	14.1
15	15	15	15	15.1,3
16	16	16	16	16.1,2
17	17	17	17	17.1,2
18	18	18	18	18.2
19	19	19	19	19.2
20	20	20	20	20.2
21	21	21	21	21.2
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.1,2,3,4
4	4	4	4	4.1,2
5	5	5	5	5.1
6	6	6	6	6.1
7	7	7	7	7.3,4
8	8	8	8	8.4
9	9	9	9	9.4,6
10	10	10	10	10.11
11	11	11	11	11.3,4
12	12	12	12	12.2
13	13	13	13	13.3,4
14	14	14	14	14.3,4,11
15	15	15	15	15.2,4
16	16	16	16	16.3
17	17	17	17	17.4
18	18	18	18	18.3
19	19	19	19	19.3
20	20	20	20	20.3,10
21	21	21	21	21.3,4
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
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MATHS MATE



Name:

Class:

Teacher:

Worksheet Results

Term 2

Skill Builder links

Sheet 1
Sheet 2
Sheet 3
Sheet 4

Skill Builder links

Sheet 5
Sheet 6
Sheet 7
Sheet 8

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NUMBER & ALGEBRA

MEASUREMENT & SPACE

S & P

PROBLEM SOLVING

1. [+ Whole Numbers to 10]
2. [- Whole Numbers to 10]
3. [× Whole Numbers to 10]
4. [÷ Whole Numbers to 10]
5. [Large Number +]
6. [Large Number -]
7. [Powers of 10 ×, ÷]
8. [Large Number ×, ÷]
9. [Decimals]
10. [Fractions]
11. [Dec. / Frac. / Percentages]
12. [Place Value]
13. [Operations]
14. [Exploring Numbers]
15. [Number Patterns / Equations]

16. [Units of Measurement]
17. [Measuring]
18. [Perimeter / Area]
19. [Shapes]
20. [Location / Transformation]

21. [Statistics / Probability]

22. [Problem Solving 1]
23. [Problem Solving 2]
24. [Problem Solving 3]

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.3,4,5
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2,3
7	7	7	7	7.1,2
8	8	8	8	8.2
9	9	9	9	9.7
10	10	10	10	10.10
11	11	11	11	11.7
12	12	12	12	12.2
13	13	13	13	13.6
14	14	14	14	14.6,7
15	15	15	15	15.5,6
16	16	16	16	16.4
17	17	17	17	17.8
18	18	18	18	18.4
19	19	19	19	19.4
20	20	20	20	20.4,5
21	21	21	21	21.5,6
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.1,2,3,4
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2
7	7	7	7	7.3,4
8	8	8	8	8.5
9	9	9	9	9.8
10	10	10	10	10.14
11	11	11	11	11.6,11
12	12	12	12	12.3,6
13	13	13	13	13.5
14	14	14	14	14.8
15	15	15	15	15.7
16	16	16	16	16.5
17	17	17	17	17.5,9
18	18	18	18	18.1,3
19	19	19	19	19.5,7
20	20	20	20	20.6
21	21	21	21	21.11
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions

Total Correct

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MATHS MATE



Name:

Class:

Teacher:

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
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NUMBER & ALGEBRA	1. [+ Whole Numbers to 10]
	2. [- Whole Numbers to 10]
	3. [× Whole Numbers to 10]
	4. [÷ Whole Numbers to 10]
	5. [Large Number +]
	6. [Large Number -]
	7. [Powers of 10 ×, ÷]
	8. [Large Number ×, ÷]
	9. [Decimals]
	10. [Fractions]
	11. [Dec. / Frac. / Percentages]
	12. [Place Value]
	13. [Operations]
	14. [Exploring Numbers]
	15. [Number Patterns / Equations]
MEASUREMENT & SPACE	16. [Units of Measurement]
	17. [Measuring]
	18. [Perimeter / Area]
	19. [Shapes]
	20. [Location / Transformation]
S & P	21. [Statistics / Probability]
PROBLEM SOLVING	22. [Problem Solving 1]
	23. [Problem Solving 2]
	24. [Problem Solving 3]
Total Correct	

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.3,4,5
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2
7	7	7	7	7.1,2
8	8	8	8	8.2,3
9	9	9	9	9.9,10
10	10	10	10	10.12,13
11	11	11	11	11.9,10
12	12	12	12	12.4,7
13	13	13	13	13.7
14	14	14	14	14.9,10
15	15	15	15	15.8
16	16	16	16	16.6
17	17	17	17	17.6
18	18	18	18	18.3
19	19	19	19	19.9
20	20	20	20	20.7,8
21	21	21	21	21.13
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.1,2,3,4
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2,3
7	7	7	7	7.3,4
8	8	8	8	8.5
9	9	9	9	9.11
10	10	10	10	10.15
11	11	11	11	11.12,14
12	12	12	12	12.8,9,11
13	13	13	13	13.5,8
14	14	14	14	14.7
15	15	15	15	15.9
16	16	16	16	16.3,4,5
17	17	17	17	17.10
18	18	18	18	18.3,6
19	19	19	19	19.10
20	20	20	20	20.5
21	21	21	21	21.12,14
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
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MATHS MATE



Name:

Class:

Teacher:

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
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NUMBER & ALGEBRA	1. [+ Whole Numbers to 10]
	2. [- Whole Numbers to 10]
	3. [× Whole Numbers to 10]
	4. [÷ Whole Numbers to 10]
	5. [Large Number +]
	6. [Large Number -]
	7. [Powers of 10 ×, ÷]
	8. [Large Number ×, ÷]
	9. [Decimals]
	10. [Fractions]
	11. [Dec. / Frac. / Percentages]
	12. [Place Value]
	13. [Operations]
	14. [Exploring Numbers]
	15. [Number Patterns / Equations]
MEASUREMENT & SPACE	16. [Units of Measurement]
	17. [Measuring]
	18. [Perimeter / Area]
	19. [Shapes]
	20. [Location / Transformation]
S & P	21. [Statistics / Probability]
PROBLEM SOLVING	22. [Problem Solving 1]
	23. [Problem Solving 2]
	24. [Problem Solving 3]
Total Correct	

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.3,4,5
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2
7	7	7	7	7.1,2
8	8	8	8	8.3
9	9	9	9	9.12
10	10	10	10	10.16
11	11	11	11	11.15
12	12	12	12	12.10,12
13	13	13	13	13.8
14	14	14	14	14.12,13
15	15	15	15	15.10
16	16	16	16	16.3,4,5,7
17	17	17	17	17.7
18	18	18	18	18.5
19	19	19	19	19.6,8
20	20	20	20	20.9
21	21	21	21	21.15
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>				

1	1	1	1	1.1,2,3,4
2	2	2	2	2.1,2,3,4,5
3	3	3	3	3.1,2,3,4
4	4	4	4	4.1,2
5	5	5	5	5.2,3
6	6	6	6	6.2
7	7	7	7	7.3,4
8	8	8	8	8.5
9	9	9	9	9.13
10	10	10	10	10.5,6,17,18
11	11	11	11	11.16
12	12	12	12	12.12
13	13	13	13	13.8
14	14	14	14	14.14
15	15	15	15	15.11
16	16	16	16	16.8
17	17	17	17	17.6
18	18	18	18	18.7
19	19	19	19	19.11
20	20	20	20	20.9
21	21	21	21	21.7,16
22	22	22	22	Hints & Solutions
23	23	23	23	Hints & Solutions
24	24	24	24	Hints & Solutions
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MATHS MATE



Name:

Class:

Teacher:

Test Results

Test 1

Test 2

Test 3

Test 4

Test 5

Test 6

Test 7

Test 8

NUMBER & ALGEBRA

1. [+ Whole Numbers to 10]
2. [- Whole Numbers to 10]
3. [× Whole Numbers to 10]
4. [÷ Whole Numbers to 10]
5. [Large Number +]
6. [Large Number -]
7. [Powers of 10 ×, ÷]
8. [Large Number ×, ÷]
9. [Decimals]
10. [Fractions]
11. [Dec. / Frac. / Percentages]
12. [Place Value]
13. [Operations]
14. [Exploring Numbers]
15. [Number Patterns / Equations]

MEASUREMENT & SPACE

16. [Units of Measurement]
17. [Measuring]
18. [Perimeter / Area]
19. [Shapes]
20. [Location / Transformation]

S & P

21. [Statistics / Probability]

PROBLEM SOLVING

22. [Problem Solving 1]
23. [Problem Solving 2]
24. [Problem Solving 3]

Total Correct

1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9
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13	13	13	13
14	14	14	14
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16	16	16	16
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18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
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1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
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6	6	6	6
7	7	7	7
8	8	8	8
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10	10	10	10
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13	13	13	13
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15	15	15	15
16	16	16	16
17	17	17	17
18	18	18	18
19	19	19	19
20	20	20	20
21	21	21	21
22	22	22	22
23	23	23	23
24	24	24	24

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Class:

Teacher:

Worksheet Number

	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
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Class:

Teacher:

Worksheet Number

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2.3

2.4

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L - Work handed in late

✗ - Not signed by parent

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Class:

Teacher:

Worksheet Number	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8
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Class:

Teacher:

Worksheet Number

4.1

4.2

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✓ - Signed by parent

L - Work handed in late

✗ - Not signed by parent

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