sixth edition

MATHS MATE

MAUVE

J. B. Wright & I. Tutos

MATHS MATE

Student Workbook - 6th Edition

ISBN 978 1 921535 85 7

J. B. Wright & I. Tutos

Preface

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

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

RECOMMENDED GRADE / YEAR LEVEL INDICATOR

		AUS 1	2	3	4	5	6	7	8	9	10	11	12
Orange	Student Workbook - 2nd Ed.												
Rose	Student Workbook - 2nd Ed.												
Yellow	Student Workbook - 5th Ed.												
Red	Student Workbook - 5th Ed.												
Blue	Student Workbook - 6th Ed.												
Green	Student Workbook - 6th Ed.												
Mauve	Student Workbook - 6th Ed.												
Coffee	Student Workbook - 3rd Ed.												
Lime	Student Workbook - 6th Ed.												
Silver	Student Workbook - 3rd Ed.												
		NZ Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13

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Maths Mate Mauve cover painting

Ringtailed Possum - 2003
Acrylic on canvas 60 × 50 cm
by Australian artist Susan Betts - Kokata, Mirning and Wirangu.

'Ringtailed Possum' 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.

MATHS MATE

MAUVE

Worksheet Results

Term 1

Name: .....

Class: .....

Teacher: .....

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [Long ×,÷]	1	1	1	1	1.1	1	1	1	1	1.5
	2. [Decimal +,–]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [Decimal ×,÷]	3	3	3	3	3.1	3	3	3	3	3.2
	4. [Fraction +,–]	4	4	4	4	4.1,2	4	4	4	4	4.1,2
	5. [Fraction ×,÷]	5	5	5	5	5.1	5	5	5	5	5.5
	6. [Percentages]	6	6	6	6	6.1,2	6	6	6	6	6.3
	7. [Decimals / Fractions / Percentages]	7	7	7	7	7.1,2	7	7	7	7	7.3
	8. [Integer +,–]	8	8	8	8	8.1	8	8	8	8	8.2
	9. [Integer ×,÷]	9	9	9	9	9.1	9	9	9	9	9.2
	10. [Rates / Ratios]	10	10	10	10	10.1	10	10	10	10	10.2,3
	11. [Indices]	11	11	11	11	11.1	11	11	11	11	11.1
	12. [Square Roots]	12	12	12	12	12.1	12	12	12	12	12.2
	13. [Exploring Number]	13	13	13	13	13.1	13	13	13	13	13.2
	14. [Financial Mathematics]	14	14	14	14	14.1	14	14	14	14	14.2
	15. [Number Patterns]	15	15	15	15	15.1	15	15	15	15	15.2
ALGEBRA	16. [Expressions]	16	16	16	16	16.1	16	16	16	16	16.1
	17. [Substitution]	17	17	17	17	17.1	17	17	17	17	17.2
	18. [Expansion]	18	18	18	18	18.1	18	18	18	18	18.1
	19. [Factorisation]	19	19	19	19	19.1	19	19	19	19	19.1
	20. [Equations]	20	20	20	20	20.1	20	20	20	20	20.2
	21. [Coordinate Geometry]	21	21	21	21	21.1	21	21	21	21	21.2,3
MEASUREMENT	22. [Units of Measurement / Time]	22	22	22	22	22.1	22	22	22	22	22.2
	23. [Perimeter / Area]	23	23	23	23	23.1	23	23	23	23	23.5
	24. [Surface Area]	24	24	24	24	24.1	24	24	24	24	24.2
	25. [Volume]	25	25	25	25	25.1	25	25	25	25	25.2
	26. [Pythagoras]	26	26	26	26	26.1	26	26	26	26	26.2
SPACE	27. [Angles]	27	27	27	27	27.1	27	27	27	27	27.2
	28. [Geometric Reasoning]	28	28	28	28	28.1,2,3	28	28	28	28	28.4
STAT.	29. [Statistics]	29	29	29	29	29.1,3,4	29	29	29	29	29.2,3,4
PROB.	30. [Probability]	30	30	30	30	30.1	30	30	30	30	30.2
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	Total Correct										

MATHS MATE

Term 1 - Sheet 1

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,+]

$63 \times 10 =$

2. [Decimal +,–]

$2.5 + 3.4 =$

3. [Decimal ×,+]

$0.6 \times 3 =$

4. [Fraction +,–]

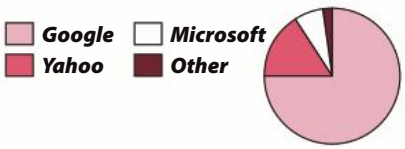
$\frac{1}{5} + \frac{3}{5} =$

5. [Fraction ×,+]

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

6. [Percentages]

What percentage of web searches are conducted using Google?



7. [Decimals / Fractions / Percentages] *

Place in ascending order:

0.125, 0.025, 0.215, 0.052

8. [Integer +,–]

$(+5) + (+3) =$

9. [Integer ×,+]

$(-5) \times (+5) =$

10. [Rates / Ratios]

3000 books sold in 10 days =

_____ books per day

11. [Indices]

$10^2 =$

12. [Square Roots]

$\sqrt{16} =$

13. [Exploring Number] *

$8 \times 3 - 3 \times 5 =$

14. [Financial Mathematics] *

Kyle saves $20 per fortnight for a year. How much does Kyle save?

$

15. [Number Patterns]

What is the value of the missing term in the pattern?

position	1	2	3	4	5
term	2	9	16	23	?

16. [Expressions]

Write as an expression:

The total of n and 16

17. [Substitution] *

If $m = 0$, find the value of $m + 15$

18. [Expansion]

Expand $5(n - 1)$

19. [Factorisation]

Factorise $5x - 15$

20. [Equations] *

Solve for x: $x + 7 = 10$

21. [Coordinate Geometry]

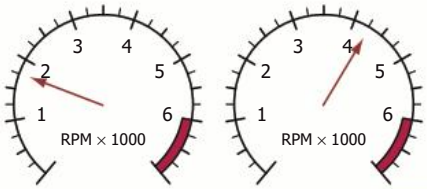
Complete the table of values for the linear rule $y = x - 5$

x	$y = x - 5$	y	(x, y)
-3	$y = -3 - 5$	-8	$(-3, -8)$
-1			
1			
3			
5			

QUOTE OF THE WEEK: The more you say the less people remember. Francis Fenelon

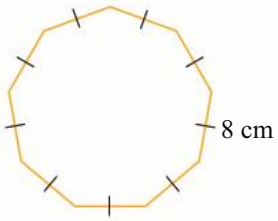
22. [Units of Measurement / Time] *

What is the difference in revolutions per minute (RPM) between the two vehicles?



23. [Perimeter / Area] *

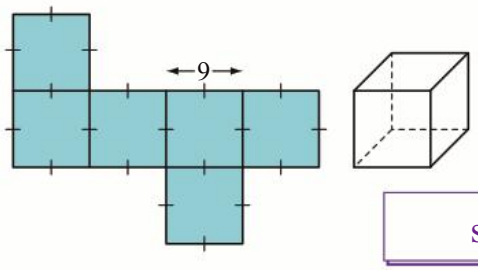
Find the perimeter of the nonagon.



cm

24. [Surface Area] *

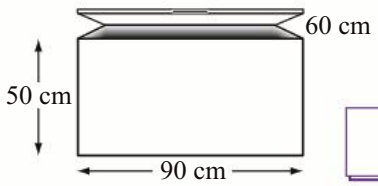
Find the total surface area of the cube by finding the area of its net.



sq. units

25. [Volume] *

This freezer is a rectangular prism. What is the volume of the freezer?



cm^3

26. [Pythagoras]

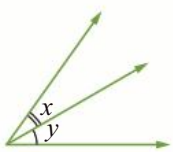
Find the positive solution for c:

$c^2 = 100$

27. [Angles]

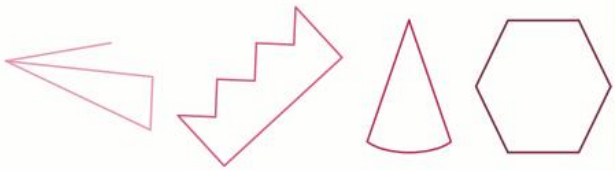
Which would describe the pair of angles marked x and y in this diagram?

A) obtuse
B) adjacent
C) complementary



28. [Geometric Reasoning]

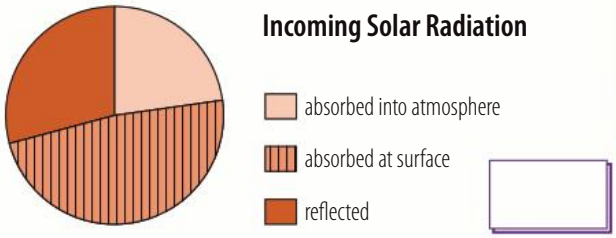
Circle the shapes that are **not** polygons.



29. [Statistics]

Of the total incoming solar radiation which fraction is closest to the amount of radiation absorbed into the atmosphere?

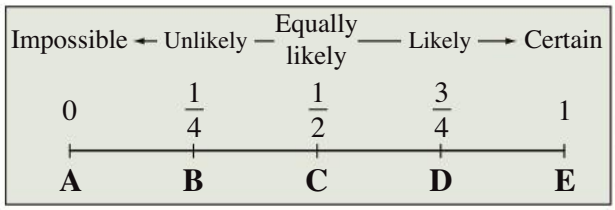
A) $\frac{1}{6}$ B) $\frac{1}{5}$ C) $\frac{1}{4}$ D) $\frac{1}{3}$



30. [Probability]

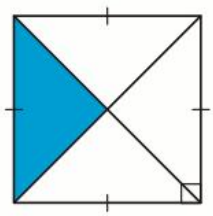
Which letter A to E describes the probability of this event?

'An even number turns up when a standard die is rolled.'



31. [Problem Solving 1] *

The shaded region has an area of 16 cm^2. What is the perimeter of the square?



cm

32. [Problem Solving 2] *

Each letter stands for a different digit. What number does ABC represent?

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

MATHS MATE

Term 1 - Sheet 2

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$97 \times 20 =$

2. [Decimal +,–]

$0.03 + 0.04 =$

3. [Decimal ×,÷] *

$3.5 \times 7 =$

4. [Fraction +,–]

$\frac{7}{9} - \frac{5}{9} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

Of the slopes at Thredbo 16% are classified Beginner, 67% Intermediate and the rest Advanced. What percentage of slopes are Advanced?

7. [Decimals / Fractions / Percentages] *

Place in descending order:

0.209, 0.092, 0.029, 0.902

8. [Integer +,–]

$(+7) + (-2) =$

9. [Integer ×,÷]

$(+2) \times (+8) =$

10. [Rates / Ratios]

24 minutes for 6 songs =

minutes per song

11. [Indices]

$2^4 =$

12. [Square Roots]

$\sqrt{36} =$

13. [Exploring Number] *

$6 + 8 \div 4 \times 3 =$

14. [Financial Mathematics] *

How much can I save in a year if I earn $200 per week and my weekly expenses are as shown?

Expense	Cost
Junk food	$25
Entertainment	$40
Clothes	$30
Other	$25

$

15. [Number Patterns]

What is the value of the missing term in the pattern?

position	1	2	3	4	5	6
term	3	12	48	192	768	?

16. [Expressions]

Write as an expression:

A number that is equal to thirty times x

17. [Substitution] *

If $k = 0$, find the value of $20 - k$

18. [Expansion]

Expand $3(p + 6)$

19. [Factorisation]

Factorise $6m - 2$

20. [Equations] *

Solve for x: $x - 5 = 3$

21. [Coordinate Geometry]

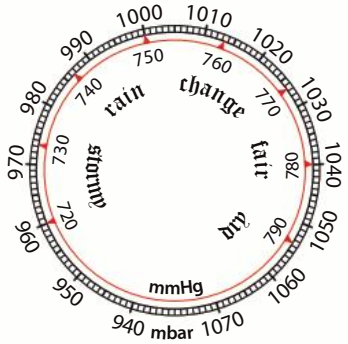
Complete the table of values for the linear rule $y = 2x - 3$

x	$y = 2x - 3$	y	(x, y)
0	$y = 2 \times 0 - 3$	-3	$(0, -3)$
0.5			
1			
1.5			
2			

QUOTE OF THE WEEK: Adopt a teenager while they still know everything.

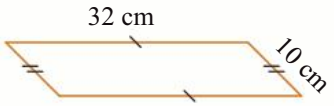
22. [Units of Measurement / Time] *

How many millimetres of mercury (mmHg) equal 1020 millibars (mbar) of pressure?



23. [Perimeter / Area] *

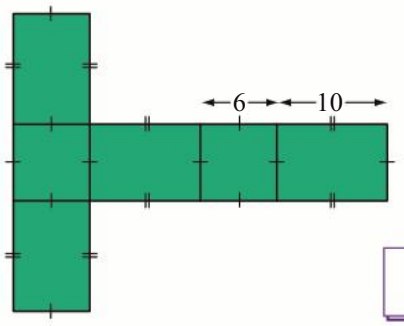
Find the perimeter of the parallelogram.

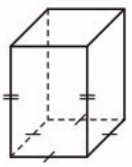


cm

24. [Surface Area] *

Find the total surface area of the square prism by finding the area of its net.

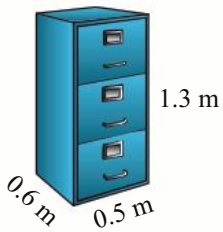




sq. units

25. [Volume] *

Find the volume of the rectangular prism.



m^3

26. [Pythagoras]

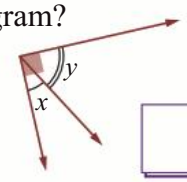
Find the positive solution for b:

$b^2 = 225$

27. [Angles]

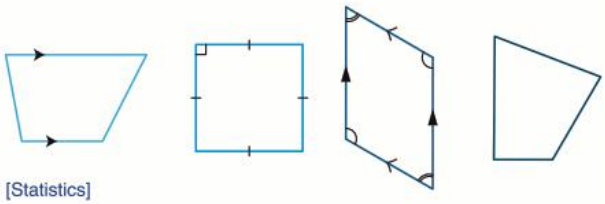
Which would describe the pair of angles marked x and y in this diagram?

A) vertically opposite
B) reflex
C) complementary



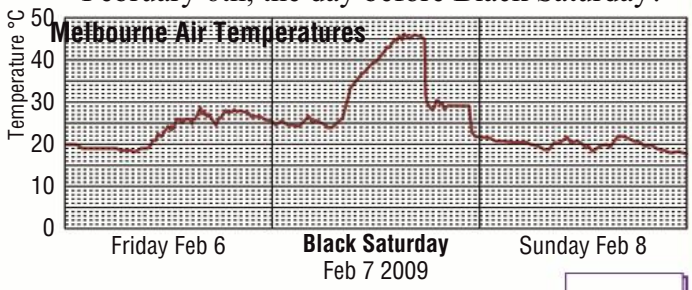
28. [Geometric Reasoning]

Circle the shapes that are **not** parallelograms.



29. [Statistics]

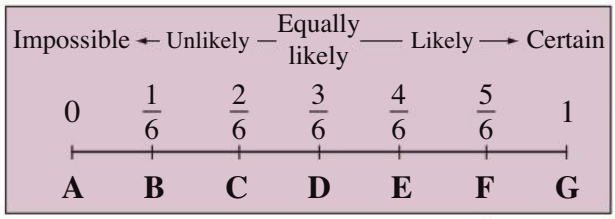
What was the maximum temperature on Friday February 6th, the day before Black Saturday?



30. [Probability]

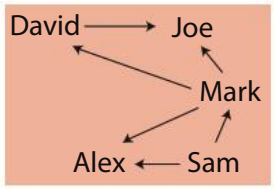
Which letter A to G describes the probability of this event?

'A month beginning with an M will follow if this month begins with a J.'



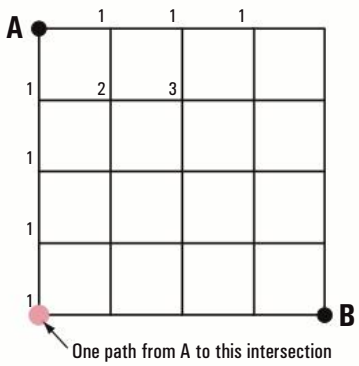
31. [Problem Solving 1] *

If David ⟶ Joe means 'David is taller than Joe', who is the tallest?



32. [Problem Solving 2] *

You are to move from A to B, always moving right or down along the lines. On how many different paths can you go? [The number of paths from A to various intersections has been included.]



MATHS MATE

Term 1 - Sheet 3

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$78 \times 30 =$

2. [Decimal +,–]

$4.78 + 6.92 =$

3. [Decimal ×,÷] *

$14.78 \times 4 =$

4. [Fraction +,–]

$\frac{4}{11} + \frac{4}{11} =$

5. [Fraction ×,÷] *

$2 \times \frac{1}{6} =$

6. [Percentages] *

The energy in cashew nuts comes from fats, carbohydrates and proteins. If 16% comes from carbohydrates and 9% from proteins, how much energy is supplied by fats?

7. [Decimals / Fractions / Percentages] *

Place in ascending order:

$\frac{3}{5}, \frac{7}{10}, \frac{57}{100}$

8. [Integer +,–]

$(-8) + (-1) =$

9. [Integer ×,÷]

$(+4) \times (-7) =$

10. [Rates / Ratios] *

A 5-pack of T-shirts cost $25.95. What is the price per T-shirt? [Give the answer correct to 2 decimal places.]

$

11. [Indices]

$3^3 =$

12. [Square Roots]

$\sqrt{144} =$

13. [Exploring Number] *

$4 \times (5 - 2) \times 5 =$

14. [Financial Mathematics] *

Circus tickets cost $8 per student if bought at the gate. The online price is $5 each. What is the online saving for a class of 25 students?

$

15. [Number Patterns]

What is the value of the missing term in the pattern?

position	1	2	3	4	5	6
term	18	13	8	3	–2	?

16. [Expressions]

Write as an expression:

m decreased by 200

17. [Substitution] *

If $s = 0$, find the value of $5s$

18. [Expansion]

Expand $9(x - 2)$

19. [Factorisation]

Factorise $12p + 24m$

20. [Equations] *

Solve for x: $12 + x = 3$

21. [Coordinate Geometry]

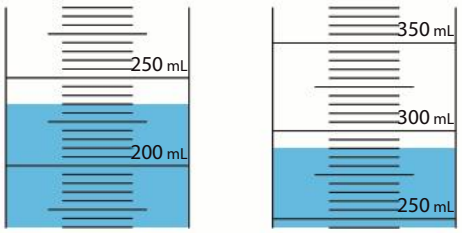
Complete the table of values for the linear rule $y = -x + 4$

x	$y = -x + 4$	y	(x, y)
–4	$y = -(-4) + 4$	8	(–4 , 8)
–2			
0			
2			
4			

QUOTE OF THE WEEK: Do not wish to be anything but what you are, and try to be that perfectly. St. Francis De Sales

22. [Units of Measurement / Time] *

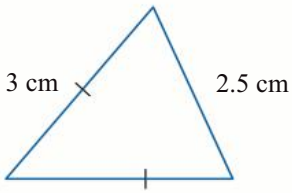
How much more water is in the second cylinder?



mL

23. [Perimeter / Area] *

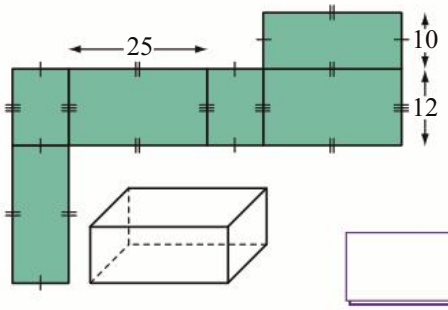
Find the perimeter of the isosceles triangle.



cm

24. [Surface Area] *

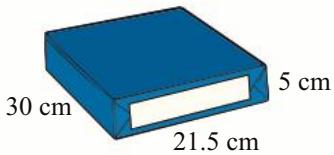
Find the total surface area of the rectangular prism by finding the area of its net.



sq. units

25. [Volume] *

Find the volume of the ream of paper.



cm^3

26. [Pythagoras] *

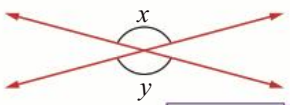
Find the positive solution for c:

$c^2 = 5^2 + 12^2$

27. [Angles]

Which would describe the pair of angles marked x and y in this diagram?

A) vertically opposite
B) supplementary
C) acute

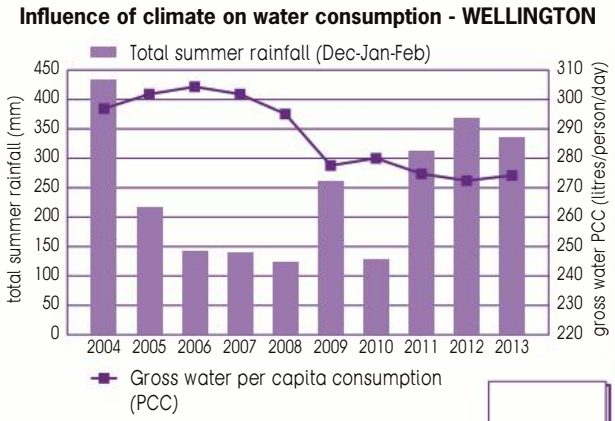


28. [Geometric Reasoning]

Draw and name the quadrilateral which has diagonals that are different in length and has two axes of symmetry.

29. [Statistics]

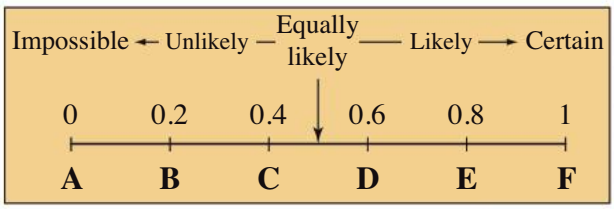
Which year registered the lowest summer rainfall in Wellington?



30. [Probability]

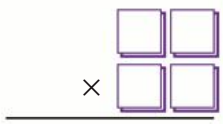
Which letter A to F best describes the probability of this event?

'Heads or tails will show uppermost when a coin is tossed.'



31. [Problem Solving 1] *

Use the digits 1, 2, 3 and 4 (once each) to complete this multiplication so that the answer is as large as possible.



32. [Problem Solving 2] *

The four digits 6, 7, 8 and 9 can be arranged to form 24 different four-digit numbers. If these numbers are arranged from smallest to largest, which number is in the seventeenth position?

MATHS MATE

Term 1 - Sheet 4

Name: .....

Due Date: ..... / ..... / .....

Parent's Signature: .....

1. [Long ×,÷]

$320 \times 100 =$

2. [Decimal +,–]

$3.96 + 0.07 =$

3. [Decimal ×,÷] *

$1.039 \times 8 =$

4. [Fraction +,–]

$\frac{11}{15} - \frac{7}{15} =$

5. [Fraction ×,÷] *

$\frac{7}{10} \times 20 =$

6. [Percentages] *

Solder is made up of 28% zinc, 15% tin and the rest copper. What percentage is copper?

7. [Decimals / Fractions / Percentages] *

Place in descending order:

$\frac{3}{10}, \frac{7}{20}, \frac{27}{100}$

8. [Integer +,–]

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

9. [Integer ×,÷]

$(-9) \times (-4) =$

10. [Rates / Ratios] *

A 4 kg bag of capsicums is sold for $11.00. What is the cost per kilogram?

$ /kg

11. [Indices]

$4^3 =$

12. [Square Roots]

$\sqrt{1600} =$

13. [Exploring Number] *

$(6 + 13) - (8 + 4) =$

14. [Financial Mathematics] *

Ian's car insurance direct debit is $48.60 per month. How much does he save if he pays the up-front annual amount of $490?

$

15. [Number Patterns]

What is the value of the missing term in the pattern?

position	1	2	3	4	5	6
term	–1	2	–4	8	–16	?

16. [Expressions]

Write as an expression:

The product of -6 and a

17. [Substitution] *

If $d = 0$, find the value of $\frac{d}{12}$

18. [Expansion]

Expand $4(a + 5)$

19. [Factorisation]

Factorise $3a - 18b$

20. [Equations] *

Solve for x: $9 - x = 4$

21. [Coordinate Geometry]

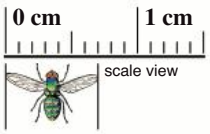
Complete the table of values for the linear rule $y = -3x - 6$

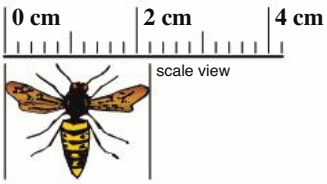
x	$y = -3x - 6$	y	(x, y)
–4	$y = -3 \times (-4) - 6$	6	(–4 , 6)
–2			
0			
2			
4			

QUOTE OF THE WEEK: The man who confesses his ignorance shows it once; he who tries to conceal it shows it many times. Japanese Proverb.

22. [Units of Measurement / Time] *

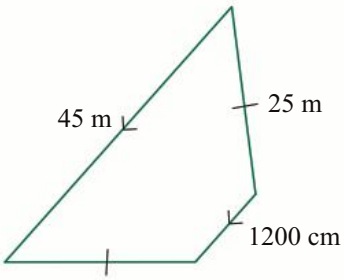
By how many millimetres is the wingspan of the wasp bigger than the fly?





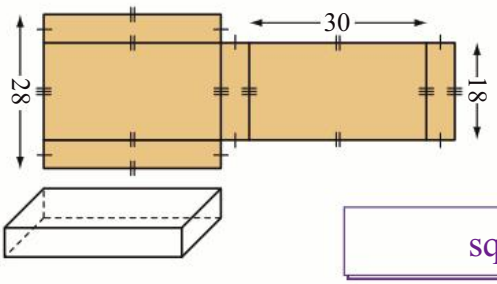
23. [Perimeter / Area] *

Find the perimeter of the trapezium in metres.



24. [Surface Area] *

Find the total surface area of the rectangular prism by finding the area of its net.



sq. units

25. [Volume] *

Each ice cube has a side length of 2 cm. What is the volume of ice in this tray?

cm^3

26. [Pythagoras] *

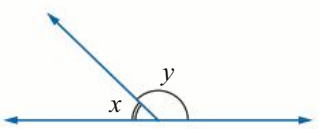
Find the positive solution for a:

$a^2 = 20^2 - 16^2$

27. [Angles]

Which would describe the pair of angles marked x and y in this diagram?

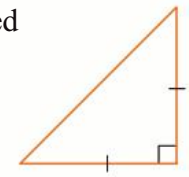
A) straight
B) supplementary
C) right



28. [Geometric Reasoning]

Which two options describe this triangle?

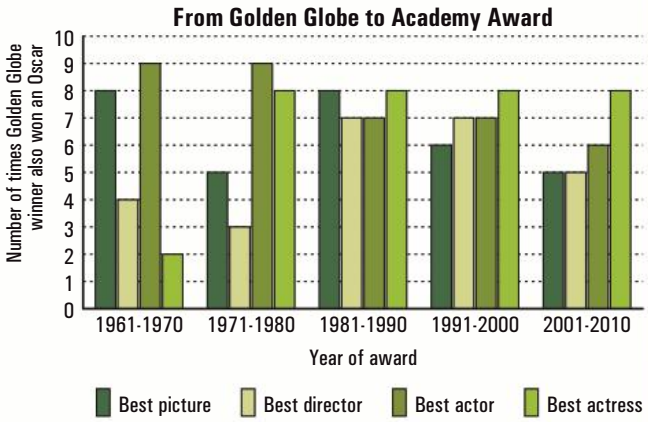
A) right-angled
B) isosceles
C) equilateral



and

29. [Statistics]

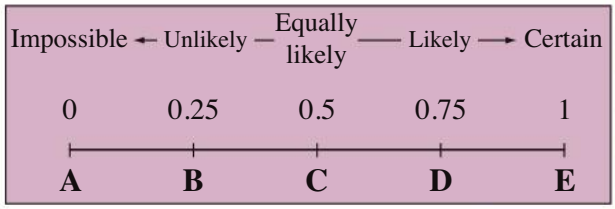
From 1961 to 2010 how many times did a Golden Globe best actress winner miss out on an Oscar for the same movie?



30. [Probability]

Which letter A to E describes the probability of this event?

'One of your 5 tickets in a 20-ticket lottery will win.'



31. [Problem Solving 1] *

A number of students are standing in a circle. They are evenly spaced and the sixth student is directly opposite the fifteenth student. How many students are there altogether?

32. [Problem Solving 2] *

Complete the addition table.

+	12		6	
3		8		
	28			
8				15
			13	

MATHS MATE

Term 1 - Sheet 5

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷]

$19\,000 \div 10 =$

2. [Decimal +,–] *

$47.78 + 6 =$

3. [Decimal ×,÷]

$3.24 \times 10 =$

4. [Fraction +,–] *

$\frac{9}{11} + \frac{3}{11} =$

5. [Fraction ×,÷] *

$\frac{3}{5} \div \frac{4}{3} =$

6. [Percentages] *

60% of \$800 =

7. [Decimals / Fractions / Percentages] *

Complete the equivalent fractions:

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

8. [Integer +,–]

$(+9) - (+5) =$

9. [Integer ×,÷]

$(+24) \div (+12) =$

10. [Rates / Ratios] *

Simplify 2 days : 2 weeks

11. [Indices]

$1^{10} =$

12. [Square Roots]

$\sqrt{\frac{1}{9}} =$

13. [Exploring Number] *

$(3 \times 4)^2 =$

14. [Financial Mathematics] *

A dinner costs \$89.75. Your share of the bill is 20%. Estimate to the nearest dollar, the size of your share.

\$

15. [Number Patterns]

Complete the pattern:

2 , 4 , 8 , 14 , 22 , ___ , ___

16. [Expressions]

In a right-angled triangle, one acute angle is x degrees. Write an expression in terms of x for the size of the other acute angle.

17. [Substitution] *

If $x = 2$, find the value of $x + 10$

18. [Expansion]

Expand $2(2d + 3)$

19. [Factorisation]

Factorise $6y - 10$

20. [Equations] *

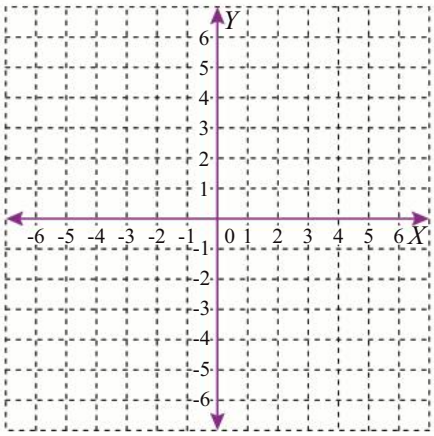
Solve for x: $\frac{x}{2} = 5$

21. [Coordinate Geometry]

Graph the line of equation $y = -1$ by first completing this table of values.

[Label the line with the rule.]

x	–2	–1	0	1	2
y	–1				



QUOTE OF THE WEEK: When you think you've seen the light at the end of the tunnel, take care. It's probably a train coming from the opposite direction. Rossiter

22. [Units of Measurement / Time]

The most appropriate unit for measuring the capacity of a water tank is:

A) square centimetres
B) cubic millimetres
C) litres
D) millilitres

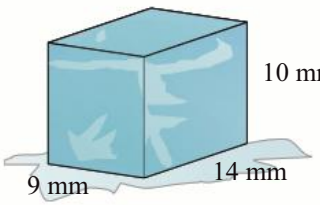
23. [Perimeter / Area] *

The rectangular screen of a high-definition television set is 71 cm wide and 40 cm high. What is its area?

cm^2

24. [Surface Area] *

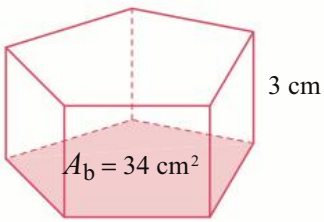
Find the total surface area of the ice block.



mm^2

25. [Volume] *

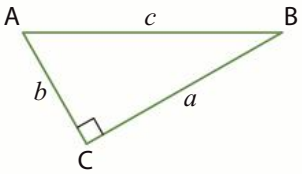
Using V = Area of base (A_b) × height (h), find the volume of the pentagonal prism.



cm^3

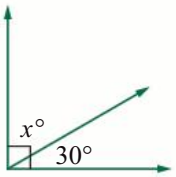
26. [Pythagoras]

Which letter marks the hypotenuse in this right-angled triangle?



27. [Angles] *

Find the value of $x°$.

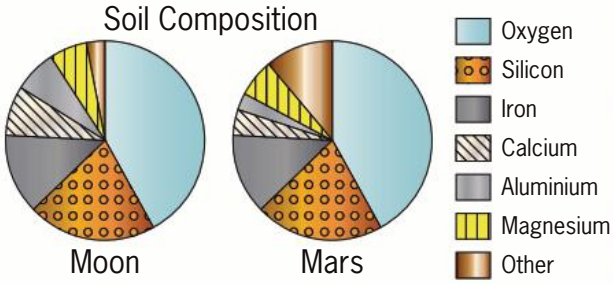


28. [Geometric Reasoning]

Circle the shapes that do not have rotational symmetry.

29. [Statistics]

Which two elements are twice as common on the moon as they are on Mars?

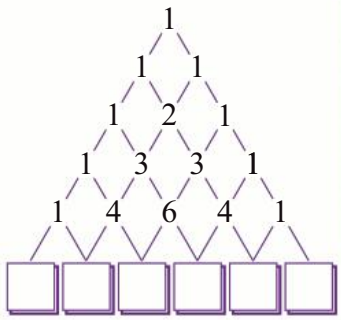


30. [Probability] *

A standard die is rolled. What is the probability of rolling a number greater than 4?
[Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

Complete the sixth line of Pascal's triangle.



32. [Problem Solving 2] *

Deduce the answer to the following game of cows and bulls.
[Reminder: A cow means a number is correct in value but in the wrong position and a bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong spots.]

Guess	Cows	Bulls
2 4 5	2	–
3 5 4	2	–
4 2 3	2	–

MATHS MATE

Term 1 - Sheet 6

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷]

$24\,800 \div 100 =$

2. [Decimal +,–] *

$19.362 + 6.638 =$

3. [Decimal ×,÷]

$100 \times 0.2 =$

4. [Fraction +,–] *

$\frac{17}{5} - \frac{9}{5} =$

5. [Fraction ×,÷] *

$\frac{1}{2} \div \frac{2}{7} =$

6. [Percentages] *

20% of \$700 =

\$

7. [Decimals / Fractions / Percentages] *

Complete the equivalent fractions: $\frac{3}{5} = \frac{15}{\square}$

8. [Integer +,–]

$(-6) - (-3) =$

9. [Integer ×,÷]

$(-4) \div (+4) =$

10. [Rates / Ratios] *

The average length of the largest mammal is 25 m and of the largest fish, 10 m. Find the ratio of largest mammal to largest fish lengths.

11. [Indices]

$4^0 =$

12. [Square Roots]

$\sqrt{\frac{81}{100}} =$

13. [Exploring Number] *

$(4 + 2 \times 6)^2 =$

14. [Financial Mathematics] *

The new jeans cost \$109.95. Mum contributes 20% of the cost. Estimate to the nearest dolllar, how much you need to save.

\$

15. [Number Patterns]

Complete the pattern:

1 , 2 , 5 , 10 , 17 , ___ , ___

16. [Expressions]

Out of z people in the audience, half were parents. How many parents were there in the audience? [Express your answer in terms of z.]

17. [Substitution] *

If $y = 8$, find the value of $13 - y$

18. [Expansion]

Expand $3(2b - 5)$

19. [Factorisation]

Factorise $10r + 25$

20. [Equations] *

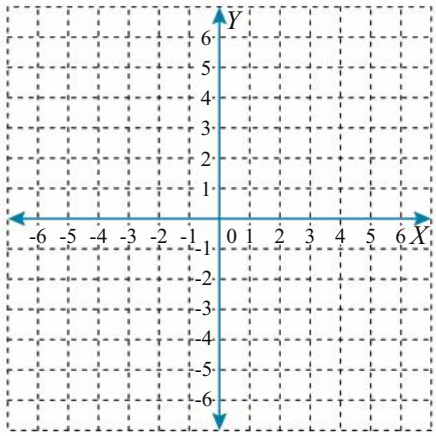
Solve for x: $2x = 8$

21. [Coordinate Geometry] *

Graph the line of equation $y = -x + 1$ by first completing this table of values.

[Label the line with the rule.]

x	–2	–1	0	1	2
y	3				
(x,y)	(–2,3)	(,)	(,)	(,)	(,)



QUOTE OF THE WEEK: Great people have one thing in common - they lack conformity. P. K. Shaw

22. [Units of Measurement / Time]

The most appropriate unit for measuring the area of Disneyland is:

A) square centimetres
B) hectares
C) kilometres
D) cubic metres

23. [Perimeter / Area] *

The rectangular floor of the Sistine Chapel is 41 m long and 13.4 m wide. What is its area?

m^2

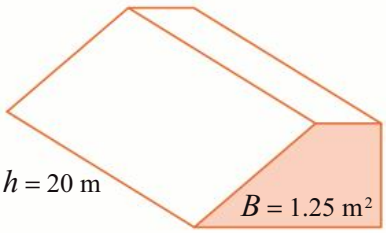
24. [Surface Area] *

Billie wants to make a CD box, open at the top. The box needs a base 13 cm by 200 cm and is to be 15 cm high. How much wood should Billie buy?

cm^2

25. [Volume] *

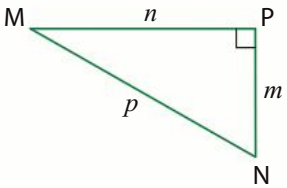
Using $V = Bh$ find the volume of the prism.



m^3

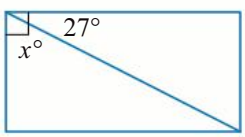
26. [Pythagoras]

Which letter marks the side opposite to angle M in this right-angled triangle?



27. [Angles] *

Find the value of $x°$.

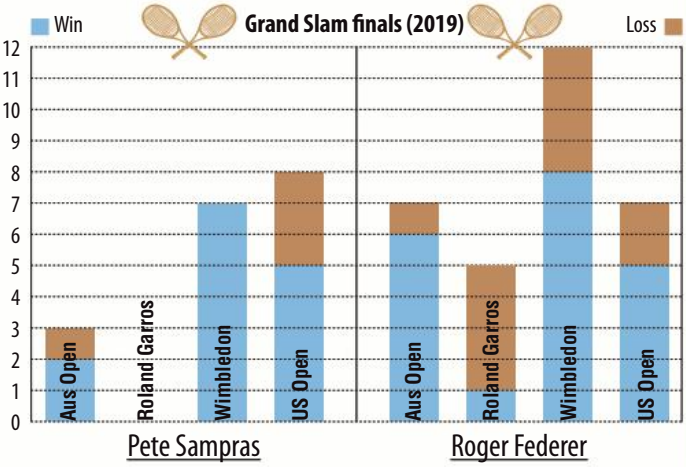


28. [Geometric Reasoning]

Circle the shapes that have rotational symmetry.

29. [Statistics]

In which Grand Slam tournament has Roger Federer lost a third of his finals played?



30. [Probability] *

A standard die is rolled. What is the probability of rolling a multiple of 3?

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

31. [Problem Solving 1] *

An archaeologist found some ancient numbers written as follows:

 for 19

 for 15

and  for 5.

What did equal?

32. [Problem Solving 2] *

Each half of a domino piece is either blank or has a number of 1, 2, 3, 4, 5 or 6 dots on it. If a domino set ranges from a double blank to a double 6 and has no repeats, how many domino pieces are there in the set?

MATHS MATE

Term 1 - Sheet 7

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷]

$39\,330 \div 1000 =$

2. [Decimal +,−] *

$17.073 + 5 =$

3. [Decimal ×,÷]

$8.07 \times 1000 =$

4. [Fraction +,−] *

$\frac{8}{17} + \frac{10}{17} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

25% of \$5.00 = \$

7. [Decimals / Fractions / Percentages] *

Complete the equivalent fractions:

$\frac{\square}{10} = \frac{15}{\square} = \frac{30}{100}$

8. [Integer +,−]

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

9. [Integer ×,÷]

$(+18) \div (-3) =$

10. [Rates / Ratios] *

A rectangular prism is 24 cm high, 15 cm long and 6 cm wide. Find the ratio of height to length to width for the prism.

11. [Indices]

$5^1 =$

12. [Square Roots] *

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

13. [Exploring Number] *

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

14. [Financial Mathematics] *

Bed Run compost worms cost \$24.99 for 500 worms. There are 1000 worms in 250 g of the compost. Estimate to the nearest dollar, the cost of 500 g of *Bed Run* compost.

\$

15. [Number Patterns]

Complete the pattern:

41 , 40 , 38 , 35 , 31 , ___ , ___

16. [Expressions]

Mia planted 5 rows of tomato plants with t plants in each row and had 8 plants left over. How many plants did Mia begin with before she started to plant?

[Express your answer in terms of t.]

17. [Substitution] *

If $z = 3$, find the value of $8z$

18. [Expansion]

Expand $10(4 - 3a)$

19. [Factorisation]

Factorise $12x - 8y$

20. [Equations] *

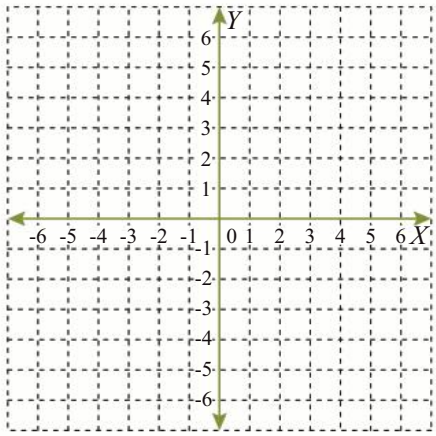
Solve for x: $3x = 18$

21. [Coordinate Geometry] *

Graph the line of equation $y = 2x - 1$ by first completing this table of values.

[Label the line with the rule.]

x	−2	−1	0	1	2
y	−5				
(x,y)	(−2,−5)	(,)	(,)	(,)	(,)



QUOTE OF THE WEEK: Frankness is a virtue, but too much frankness is rudeness. Gotschal

22. [Units of Measurement / Time]

The most appropriate unit for measuring the weight of a piano is:

A) calories
B) kilograms
C) grams
D) grams per cubic centimetre

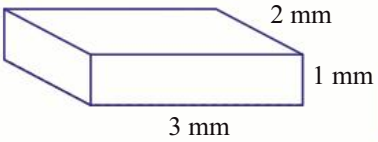
23. [Perimeter / Area] *

The rectangular top of a table tennis table is approximately 270 cm long and 150 cm wide. What is its area?

cm^2

24. [Surface Area] *

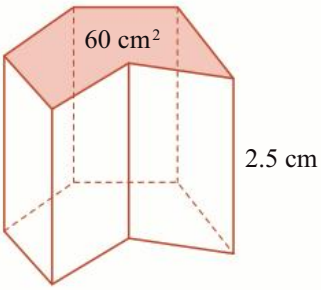
The total surface area of the rectangular prism is 22 mm^2. What is the total surface area if all the dimensions are doubled?



mm^2

25. [Volume] *

Find the volume of the prism.

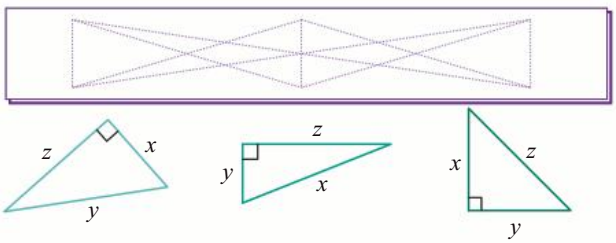


cm^3

26. [Pythagoras]

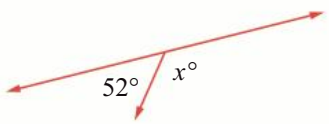
Connect the following Pythagoras' relationships to their corresponding triangle:

$x^2 = z^2 - y^2$ $\quad y^2 = x^2 + z^2$ $\quad z^2 = x^2 - y^2$



27. [Angles] *

Find the value of $x°$.

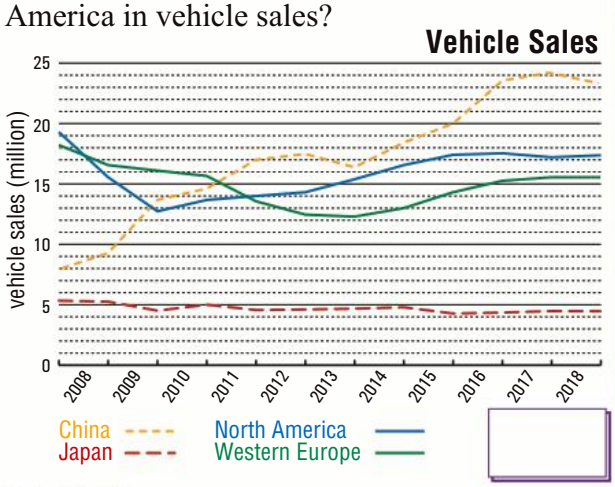


28. [Geometric Reasoning]

This shape has rotational symmetry. How many times during a full turn (360°) does the image of the shape exactly cover the original figure (order of rotational symmetry)?

29. [Statistics]

In which year did China overtake North America in vehicle sales?



30. [Probability] *

A 52-card deck of playing cards is shuffled, and one card is dealt from the top of the deck. What is the probability that it is a red 10?

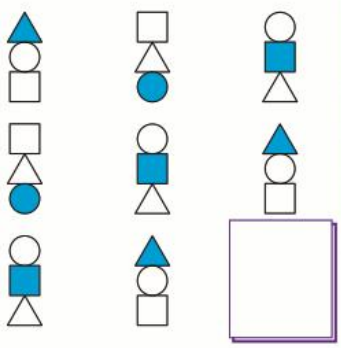
31. [Problem Solving 1] *

A frog was trying to leap out of a well that was 10 metres deep. In the first minute the frog leapt up 2 metres. In the second minute it slipped down 1 metre. This pattern of leaping 2 metres one minute and falling 1 metre the next, was continued. How long did the frog take to reach the top of the well?

min

32. [Problem Solving 2] *

Complete the missing figure in the pattern:



MATHS MATE

Term 1 - Sheet 8

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷]

$2080 \div 100 =$

2. [Decimal +,−] *

$10.047 + 6.787 =$

3. [Decimal ×,÷]

$0.003 \times 100 =$

4. [Fraction +,−] *

$\frac{16}{7} - \frac{1}{7} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

4% of \$10.00 = \$

7. [Decimals / Fractions / Percentages] *

Complete the equivalent fractions:

$\frac{\square}{\square} = \frac{15}{20} = \frac{\square}{100}$

8. [Integer +,−]

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

9. [Integer ×,÷]

$(-8) \div (-1) =$

10. [Rates / Ratios] *

At the 2016 Rio de Janeiro Olympics, France won 10 gold medals, 18 silver medals and 14 bronze medals. Find the ratio of gold to silver to bronze medals.

11. [Indices]

$0^4 =$

12. [Square Roots] *

$\sqrt{2\frac{7}{9}} =$

13. [Exploring Number] *

$8 + (10 - 7)^2 =$

14. [Financial Mathematics] *

Myra pays \$79.95 for an old bike, cleans it up and sells it for 15% more. Estimate to the nearest dollar, Myra's profit.

\$

15. [Number Patterns]

Complete the pattern:

62 , 60 , 56 , 50 , 42 , ___ , ___

16. [Expressions]

Gino sold 10 boxes of m mangoes each and 3 boxes of p peaches each. How many pieces of fruit did he sell altogether? [Express your answer in terms of m and p.]

17. [Substitution] *

If $t = 5$, find the value of $\frac{30}{t}$

18. [Expansion]

Expand $7(4y - 3)$

19. [Factorisation]

Factorise $15a + 6b$

20. [Equations] *

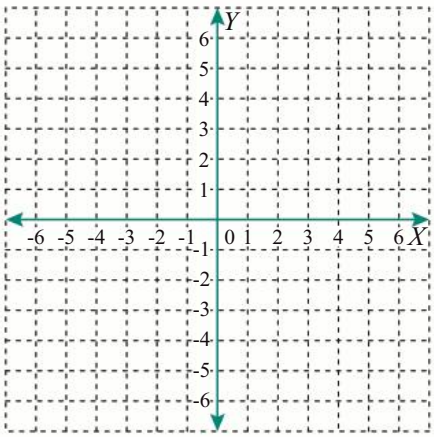
Solve for x: $\frac{x}{4} = 3$

21. [Coordinate Geometry] *

Graph the line of equation $y = -3x$ by first completing this table of values.

[Label the line with the rule.]

x	−2	−1	0	1	2
y	6				



QUOTE OF THE WEEK: Some people walk in the rain, others get wet. Roger Miller

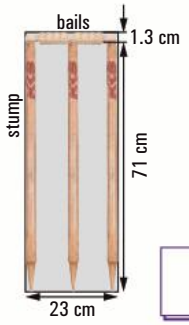
22. [Units of Measurement / Time]

The most appropriate unit for measuring the volume of oil in a tanker is:

A) cubic metres
B) cubic millimetres
C) millilitres
D) metres

23. [Perimeter / Area] *

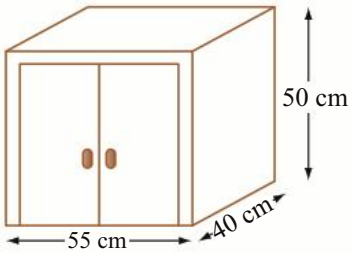
Cricket stumps stand 71 cm above the ground. The bails protrude 1.3 cm above this. The wicket (3 stumps) is 23 cm in width. What is the rectangular area of the wicket?



cm^2

24. [Surface Area] *

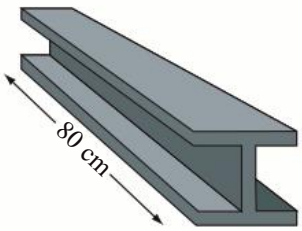
If Nino plans to paint only the top, front and left and right sides of his cabinet, what is the surface area that will be painted?



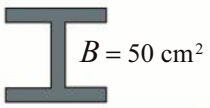
cm^2

25. [Volume] *

Find the volume of steel required to make the beam.



Area of cross section

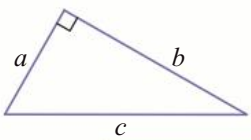


cm^3

26. [Pythagoras]

Which statements are true for the triangle below?

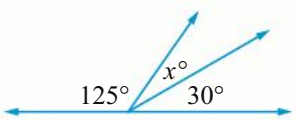
A) $a^2 + c^2 = b^2$
B) $c^2 = a^2 + b^2$
C) $b^2 = c^2 - a^2$



and

27. [Angles] *

Find the value of $x°$.

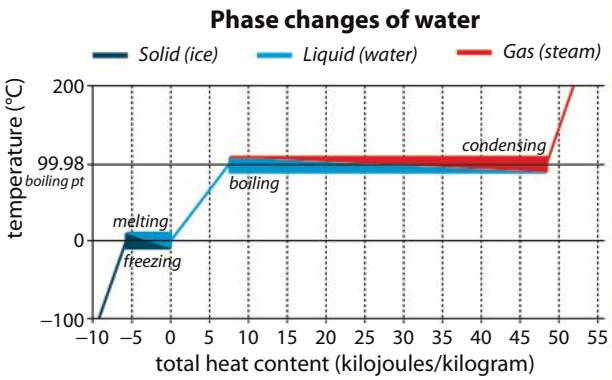


28. [Geometric Reasoning]

This shape has rotational symmetry. How many times during a full turn (360°) does the image of the shape exactly cover the original figure (order of rotational symmetry)?

29. [Statistics]

If water has a total heat content of 5 kilojoules/kilogram, which phase is it in?



30. [Probability] *

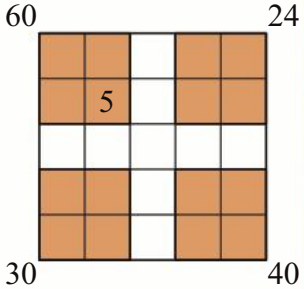
A 52-card deck of playing cards is shuffled, and one card is dealt from the top of the deck. What is the probability that it is a black court card (J, Q or K)? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

Each of my sons has as many brothers as sisters, but each of my daughters has only half as many sisters as brothers. How many children do I have?

32. [Problem Solving 2]

Place all the digits 1 to 5 in each row and column, so that they are not repeated in any of the rows, columns, diagonals and shaded squares. The numbers outside the big square represent the products of the four digits in each shaded square.



MATHS MATE

Worksheet Results

Term 2

Name: .....

Class: .....

Teacher: .....

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [Long ×,÷]	1	1	1	1	1.2	1	1	1	1	1.4,6
	2. [Decimal +,–]	2	2	2	2	2.2	2	2	2	2	2.1
	3. [Decimal ×,÷]	3	3	3	3	3.3	3	3	3	3	3.4
	4. [Fraction +,–]	4	4	4	4	4.1,2	4	4	4	4	4.3,4
	5. [Fraction ×,÷]	5	5	5	5	5.2	5	5	5	5	5.5
	6. [Percentages]	6	6	6	6	6.4	6	6	6	6	6.5
	7. [Decimals / Fractions / Percentages]	7	7	7	7	7.4,5	7	7	7	7	7.6,7
	8. [Integer +,–]	8	8	8	8	8.1	8	8	8	8	8.2
	9. [Integer ×,÷]	9	9	9	9	9.1	9	9	9	9	9.2
	10. [Rates / Ratios]	10	10	10	10	10.4	10	10	10	10	10.5,6,7
	11. [Indices]	11	11	11	11	11.2	11	11	11	11	11.3
	12. [Square Roots]	12	12	12	12	12.3	12	12	12	12	12.4
	13. [Exploring Number]	13	13	13	13	13.3,4	13	13	13	13	13.5,6
	14. [Financial Mathematics]	14	14	14	14	14.3	14	14	14	14	14.4
	15. [Number Patterns]	15	15	15	15	15.3	15	15	15	15	15.4
ALGEBRA	16. [Expressions]	16	16	16	16	16.2	16	16	16	16	16.3
	17. [Substitution]	17	17	17	17	17.3	17	17	17	17	17.4
	18. [Expansion]	18	18	18	18	18.2	18	18	18	18	18.3
	19. [Factorisation]	19	19	19	19	19.2	19	19	19	19	19.3
	20. [Equations]	20	20	20	20	20.3	20	20	20	20	20.4
	21. [Coordinate Geometry]	21	21	21	21	21.4,5	21	21	21	21	21.6,7
MEASUREMENT	22. [Units of Measurement / Time]	22	22	22	22	22.2,4	22	22	22	22	22.5
	23. [Perimeter / Area]	23	23	23	23	23.1	23	23	23	23	23.6,7,9
	24. [Surface Area]	24	24	24	24	24.3	24	24	24	24	24.4
	25. [Volume]	25	25	25	25	25.2	25	25	25	25	25.2
	26. [Pythagoras]	26	26	26	26	26.3	26	26	26	26	26.4
SPACE	27. [Angles]	27	27	27	27	27.3	27	27	27	27	27.4
	28. [Geometric Reasoning]	28	28	28	28	28.5,6	28	28	28	28	28.8
STAT.	29. [Statistics]	29	29	29	29	29.5,6,7	29	29	29	29	29.9
PROB.	30. [Probability]	30	30	30	30	30.2	30	30	30	30	30.2
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	Total Correct	◯	◯	◯	◯		◯	◯	◯	◯	

MATHS MATE

Term 2 - Sheet 1

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$16 \times 17 =$

2. [Decimal +,–] *

$6.3 - 0.7 =$

3. [Decimal ×,÷]

$17.26 \times 0.1 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷]

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

6. [Percentages] *

10% of 350 =

7. [Decimals / Fractions / Percentages] *

Write 0.75 as a percentage.

8. [Integer +,–]

$(-5) + (+7) =$

9. [Integer ×,÷]

$(+6) \times (+6) =$

10. [Rates / Ratios] *

Ocean water represents 70% of the earth's surface. Find the ratio of water to earth's surface.

11. [Indices]

$\left(\frac{1}{2}\right)^3 =$

12. [Square Roots]

$\sqrt{0.09} =$

13. [Exploring Number]

Round 0.85 to 1 decimal place.

14. [Financial Mathematics] *

Before adding a GST of 10%, a magazine costs $6.40. Find the total cost of the magazine including GST.

[Round your answer to the nearest 5 cents.] $

15. [Number Patterns]

Complete the pattern:

$-15, -12, -9, -6, -3,$ ___ , ___

16. [Expressions]

Simplify $x \times 2$

17. [Substitution] *

If $a = 3$ and $b = 6$,
find the value of $4a - 2b$

18. [Expansion]

Expand $c(c + 4)$

19. [Factorisation]

Factorise $mn + m$

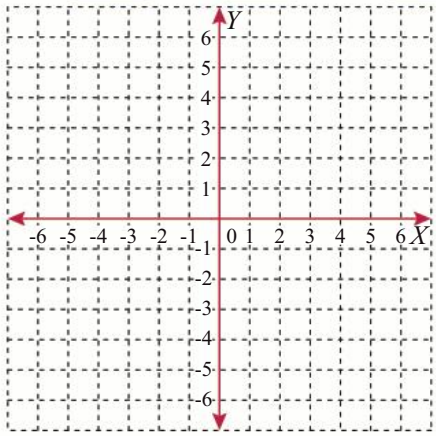
20. [Equations] *

Solve for x: $3x - 2 = 7$

21. [Coordinate Geometry] *

Complete the missing coordinates given that A, B and C lie on the line defined by the rule $y = x + 2$. Plot the points and draw the line.

A(0,), B(,3), C(,6)



QUOTE OF THE WEEK: My way of joking is to tell the truth. It's the funniest joke in the world. George Bernard Shaw

22. [Units of Measurement / Time]

Choose the most reasonable temperature for paper to self ignite.

A) 100°C
B) 23°C
C) 233°C

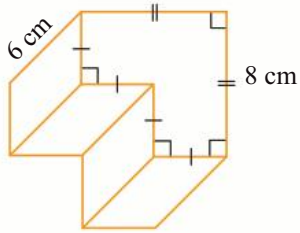
23. [Perimeter / Area] *

Find the perimeter of a rhombus with a side length of 11 centimetres.

cm

24. [Surface Area] *

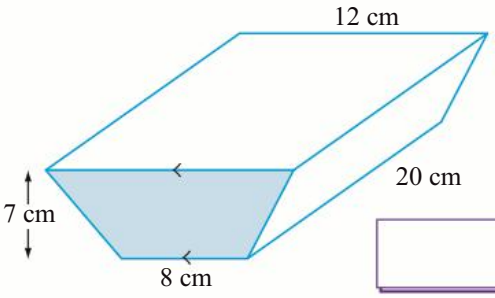
Find the total surface area of the prism.



cm^2

25. [Volume] *

Find the volume of the prism.



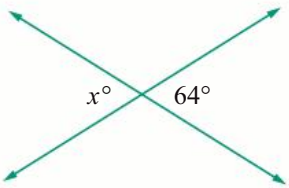
cm^3

26. [Pythagoras] *

Find the positive solution for b:
$30^2 + b^2 = 50^2$

27. [Angles]

Find the value of $x°$.



28. [Geometric Reasoning]

Sketch a square pyramid. How many vertices does a square pyramid have?

vertices =

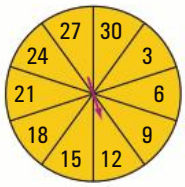
29. [Statistics] *

Find the median and range of this set of data:
3, 3, 4, 4, 5, 5, 6, 6, 7

median = range =

30. [Probability] *

This spinner is spun once. What is the probability of spinning a multiple of 4?
[Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

"Could you change $2 for me for the parking meter?" inquired the young woman.
"Sure," I replied, knowing I had more than $2 in change in my pocket. In actual fact however, although I did have more than $2 in change, I could not give the woman exactly $2. What is the largest amount of change I could have in my pocket without being able to give change for $2 exactly?

$

32. [Problem Solving 2] *

The lines of a multiplication table are shown jumbled below. Which times table is it?

B × H = GD
B × G = FC
B × F = B
B × J = IJ
B × E = JI
B × I = HE
B × B = CF
B × C = DG
B × D = EH

MATHS MATE

Term 2 - Sheet 2

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$24 \times 13 =$

2. [Decimal +,–] *

$3.04 - 2.38 =$

3. [Decimal ×,÷]

$0.1 \times 0.65 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷]

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

6. [Percentages] *

15% of 40 =

7. [Decimals / Fractions / Percentages] *

Write 0.3 as a percentage.

8. [Integer +,–]

$(-3) + (-2) =$

9. [Integer ×,÷]

$(-4) \times (+12) =$

10. [Rates / Ratios] *

Normally, 55% of our blood's volume is made up of plasma. Find the ratio of plasma to the rest of the blood components.

11. [Indices]

$\left(\frac{2}{3}\right)^2 =$

12. [Square Roots]

$\sqrt{0.81} =$

13. [Exploring Number]

Round 8.473 to 2 decimal places.

14. [Financial Mathematics] *

The cost of a car service was $770 including GST. If the GST is 10%, how much GST was included in the cost?

$

15. [Number Patterns]

Complete the pattern:

$-13, -9, -5, -1, 3,$ ___ , ___

16. [Expressions]

Simplify $b \times a$

17. [Substitution] *

If $a = 12$ and $b = 2$,

find the value of $\frac{3ab}{8}$

18. [Expansion]

Expand $e(e - 5)$

19. [Factorisation]

Factorise $3p + 15pq$

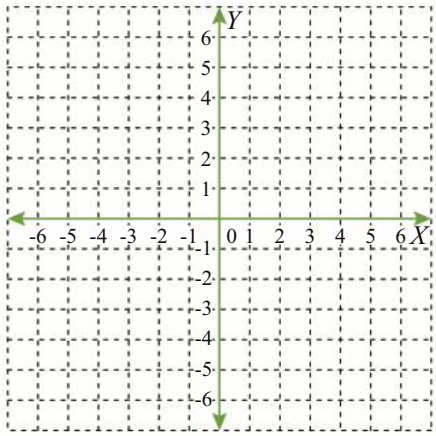
20. [Equations] *

Solve for x: $\frac{x}{3} - 2 = 4$

21. [Coordinate Geometry] *

Complete the missing coordinates given that M, N and P lie on the line defined by the rule $y = 3x - 1$. Plot the points and draw the line.

M(,2), N(0,), P(2,)



QUOTE OF THE WEEK: Hurry! I never hurry. I have no time to hurry. Igor Stravinsky: Attrib.

22. [Units of Measurement / Time]

Choose the most reasonable volume for the air in a four-man, hot air balloon.

A) 2500 m^3
B) 2.5 m^3
C) 25 000 m^3

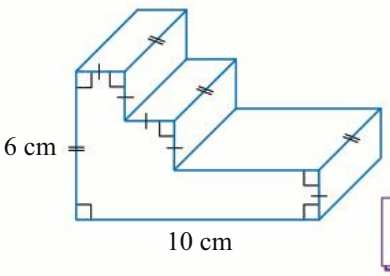
23. [Perimeter / Area] *

Central Park in New York City is rectangular in shape, 4 km in length and 0.8 km wide. How far would a run around Central Park be?

km

24. [Surface Area] *

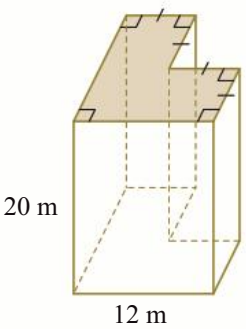
Find the total surface area of the prism.



cm^2

25. [Volume] *

Find the volume of the prism.



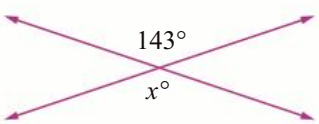
m^3

26. [Pythagoras] *

Find the positive solution for a:
$a^2 + 12^2 = 13^2$

27. [Angles]

Find the value of $x°$.



28. [Geometric Reasoning]

Sketch and name the three-dimensional shape that has five faces, two of which are triangles.

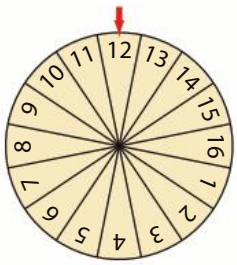
29. [Statistics] *

Find the mode and median of this set of data:
17, 15, 16, 16, 14, 15, 17, 15, 18, 14, 16, 15

mode = median =

30. [Probability] *

This spinner is spun once. What is the probability of spinning a number greater than 11? [Give your answer as a fraction in simplest form.]

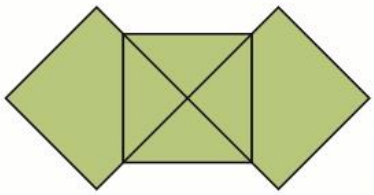


31. [Problem Solving 1] *

The average of six numbers is 8.5. A further two numbers are added and the average is still 8.5. What is the sum of these two numbers?

32. [Problem Solving 2] *

Three squares, each with side length of 12 cm, are arranged as shown below. What is the area of the resulting shape?



cm^2

MATHS MATE

Term 2 - Sheet 3

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$39 \times 21 =$

2. [Decimal +,–] *

$23.49 - 5.06 =$

3. [Decimal ×,÷]

$0.01 \times 45.63 =$

4. [Fraction +,–] *

$\frac{7}{8} + \frac{3}{8} =$

5. [Fraction ×,÷]

$\frac{3}{4} \times \frac{1}{5} =$

6. [Percentages] *

75% of 64 =

7. [Decimals / Fractions / Percentages] *

Write 80% as a decimal.

8. [Integer +,–]

$(+4) + (-6) =$

9. [Integer ×,÷]

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

10. [Rates / Ratios] *

A linen/cotton jumper is 52% linen. What is the ratio of linen to cotton?

11. [Indices]

$\left(\frac{1}{10}\right)^4 =$

12. [Square Roots]

$\sqrt{2.25} =$

13. [Exploring Number]

Write the rational approximation of π correct to two decimal places, where $\pi \approx 3.14159265$

[Note: π is the ratio of a circle's circumference to its diameter.]

14. [Financial Mathematics] *

Stan pays a 10% deposit to put a pool table on lay-by. If the pool table costs $1590, how much does he have left to pay?

$

15. [Number Patterns]

Complete the pattern:

7 , 4 , 1 , –2 , –5 , ___ , ___

16. [Expressions]

Simplify $d \times 4 \times c$

17. [Substitution] *

If $m = 4$ and $n = 5$,

find the value of $\frac{4m + n}{3}$

18. [Expansion]

Expand $g(2 - h)$

19. [Factorisation]

Factorise $3st + 6tu$

20. [Equations] *

Solve for x: $5 + 4x = 3$

21. [Coordinate Geometry] *

Which line does the point (1,4) lie on?

A) $y = -4x$

B) $y = x + 3$

C) $y = x - 4$

QUOTE OF THE WEEK: The man who cannot believe in himself cannot believe in anything else. Roy L. Smith

22. [Units of Measurement / Time]

FIFA require soccer balls to have a weight of 430 ± 20 g. What is the minimum acceptable weight?

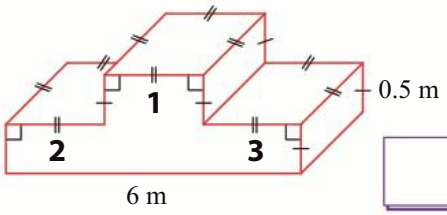
g

23. [Perimeter / Area] *

What is the perimeter in centimetres of a regular octagon with sides measuring 17 mm?

24. [Surface Area] *

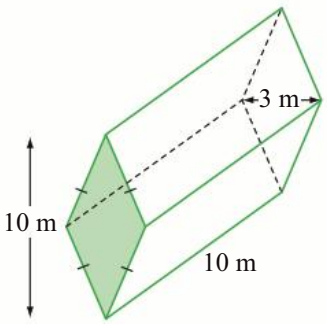
Find the total surface area of the podium.



m^2

25. [Volume] *

Find the volume of the prism.



m^3

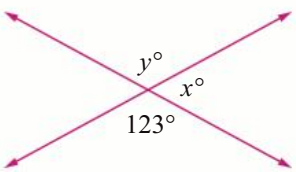
26. [Pythagoras] *

Find the positive solution for c:

$8^2 + 15^2 = c^2$

27. [Angles] *

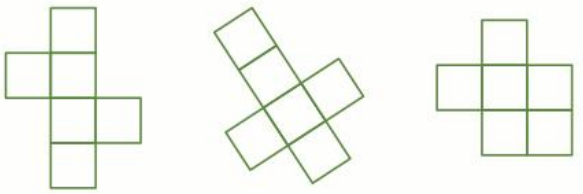
Find the values of $x°$ and $y°$.



$x° =$ $y° =$

28. [Geometric Reasoning]

Circle the net that **cannot** be folded to make a model of a cube.



29. [Statistics] *

Find the median and mode of this set of data:

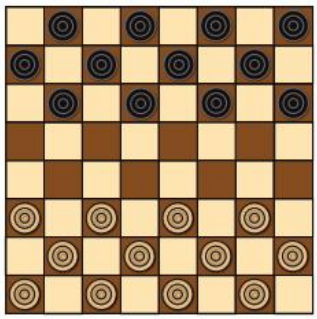
3.5, 4.2, 3.6, 3.4, 4, 4.2, 4.1, 3.9, 3.3, 4.2, 3.8

median = mode =

30. [Probability] *

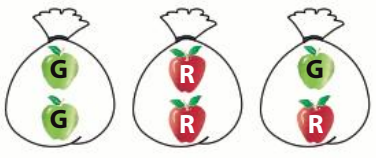
A fly lands on a square of the draught board. What is the probability that the fly lands on a square containing a black draught?

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



31. [Problem Solving 1] *

Each of these bags contains two apples. One bag contains two green apples, another two red apples and the third one green and one red apple. All three bags are mislabelled. You may look at only one apple from any one of the bags. Which bag should you select from to be sure you can determine the content of all three bags?



32. [Problem Solving 2] *

A palindrome is a number that reads the same forwards and backwards, such as 22 or 39 793. How many palindromes are there between 10 and 400?

MATHS MATE

Term 2 - Sheet 4

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$45 \times 18 =$

2. [Decimal +,–] *

$1.048 - 0.099 =$

3. [Decimal ×,÷]

$8.09 \times 0.01 =$

4. [Fraction +,–] *

$\frac{13}{12} - \frac{1}{12} =$

5. [Fraction ×,÷]

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

6. [Percentages] *

60% of 90 =

7. [Decimals / Fractions / Percentages] *

Write 5% as a decimal.

8. [Integer +,–]

$(-9) + (+8) =$

9. [Integer ×,÷]

$(-7) \times (-8) =$

10. [Rates / Ratios] *

Of the 100 g of ice cream, 25 g are sugars. Find the ratio of sugar to other ice cream components.

11. [Indices]

$\left(\frac{3}{5}\right)^3 =$

12. [Square Roots]

$\sqrt{1.21} =$

13. [Exploring Number]

$\sqrt{3} \approx 1.73205081$

Write the rational approximation of $\sqrt{3}$ correct to three decimal places.

14. [Financial Mathematics] *

Kiara buys a textbook online for $55. If shipping and handling are an additional 30% of the price, how much will she pay altogether?

$

15. [Number Patterns]

Complete the pattern:

12 , 8 , 4 , 0 , –4 , ___ , ___

16. [Expressions]

Simplify $5 \times m \div 3$

17. [Substitution] *

If $m = 10$ and $n = 1$,

find the value of $\frac{m}{5} - n$

18. [Expansion]

Expand $l(3 + m)$

19. [Factorisation]

Factorise $4xy - 6yz$

20. [Equations] *

Solve for x: $4 - \frac{x}{4} = 5$

21. [Coordinate Geometry] *

Which of these points lie on the line defined by the rule $y = 3x + 2$?

A(2,3)
B(0,2)
C(2,8)

and

QUOTE OF THE WEEK: You can only find truth with logic if you have already found truth without it. G. K. Chesterton

22. [Units of Measurement / Time]

Find the maximum accepted height for a basketball ring which must be positioned 3050 ± 6 mm above the floor.

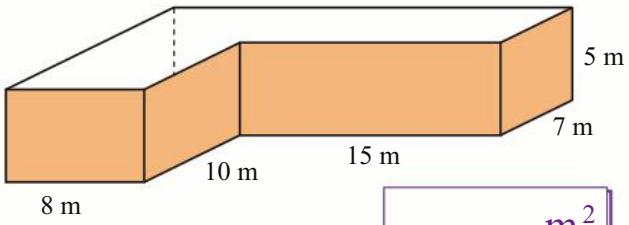
mm

23. [Perimeter / Area] *

What is the perimeter in metres of an isosceles triangle with congruent sides measuring 230 cm and the other side measuring 2.9 m?

24. [Surface Area] *

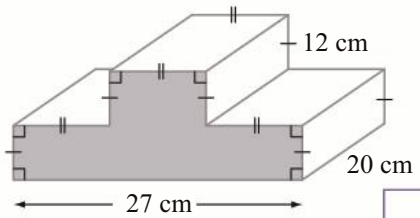
Kate's house exterior needs painting. Disregarding windows and doors, find the surface area of the walls.



m^2

25. [Volume] *

Find the volume of the podium.



cm^3

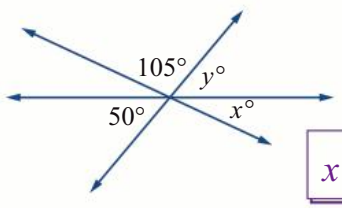
26. [Pythagoras] *

Find the positive solution for a:

$a^2 + 7^2 = 25^2$

27. [Angles] *

Find the values of $x°$ and $y°$.



$x° =$ $y° =$

28. [Geometric Reasoning]

Circle the net that **can** be folded to make a model of a triangular prism.

29. [Statistics] *

Calculate the mode and mean of this set of data:

9, 10, 12, 11, 14, 11, 12, 8, 12

mode = mean =

30. [Probability] *

A fly lands onto a square of the chess board. What is the probability that the fly lands on a square containing a pawn (♙ or ♟)?

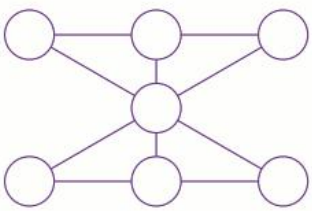
[Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

A pattern of triangles is made from toothpicks as shown below. If there are 87 toothpicks used, how many triangles have been formed?

32. [Problem Solving 2] *

Fill in the numbers 2 to 8 so that the sum on each straight line is 15.



MATHS MATE

Term 2 - Sheet 5

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$8050 \div 50 =$

2. [Decimal +,–] *

$11.08 + 2.4 =$

3. [Decimal ×,÷]

$0.5 \times 0.9 =$

4. [Fraction +,–]

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

5. [Fraction ×,÷] *

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

6. [Percentages] *

Of the 12.4 million species of organisms in the world today, 64% (almost two thirds) are insects. Estimate to the nearest million the number of insect species.

7. [Decimals / Fractions / Percentages] *

Write 0.5 as a fraction in simplest form.

8. [Integer +,–]

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

9. [Integer ×,÷]

$(+25) \div (+5) =$

10. [Rates / Ratios] *

A certain jet ski on the market will reach about 105 kilometres per hour in ideal conditions. At this speed, what distance can it cover in 2 hours?

km

11. [Indices] *

Evaluate $2^4 \times 2^2$

12. [Square Roots] *

$2\sqrt{16} =$

13. [Exploring Number]

3.4×10^7 is the scientific notation for:

A) 3.40000000
B) 34 000 000
C) 340 000 000

14. [Financial Mathematics] *

Kim pays $28 000 for a painting and sells it for 30% more. Calculate the profit.

$

15. [Number Patterns]

Complete the pattern:

$\frac{3}{2}$, 3 , 6 , 12 , 24 , ___ , ___

16. [Expressions]

Choose the like terms:

$2z$, 4 , $3z$

17. [Substitution] *

If $y = x - 11$, find y when $x = 11$

18. [Expansion]

Expand $3i(i + 3)$

19. [Factorisation] *

Factorise and evaluate

$99 \times 10 - 99 \times 9$

20. [Equations] *

Solve for x: $4(x + 3) = 12$

21. [Coordinate Geometry] *

Find the x-intercept of the line defined by the equation $y = x - 4$

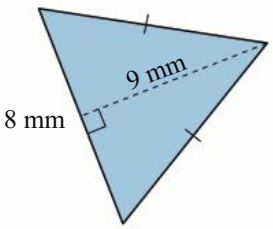
22. [Units of Measurement / Time] *

How many minutes from 5:45 pm until 1:20 am the next day?

QUOTE OF THE WEEK: Plan to be spontaneous tomorrow!

23. [Perimeter / Area] *

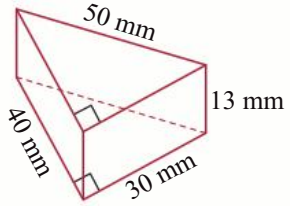
Find the area of the isosceles triangle.



mm^2

24. [Surface Area] *

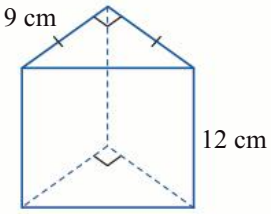
Find the total surface area of the triangular prism.



mm^2

25. [Volume] *

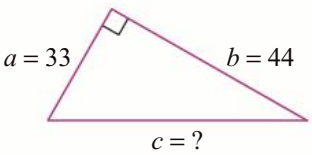
Find the volume of the triangular prism.



cm^3

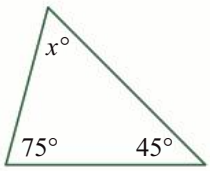
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $a^2 + b^2 = c^2$. Find the length of the hypotenuse.



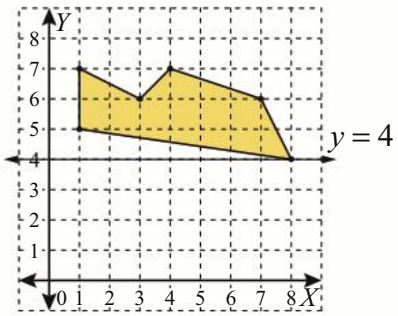
27. [Angles] *

Find the value of $x°$.



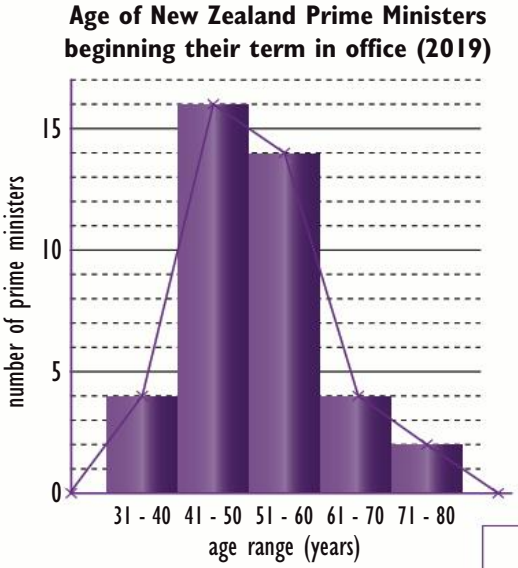
28. [Geometric Reasoning]

Draw the reflection of the shape in the line of equation $y = 4$.



29. [Statistics]

How many New Zealand Prime Ministers began their term in office at or before the age of 50?



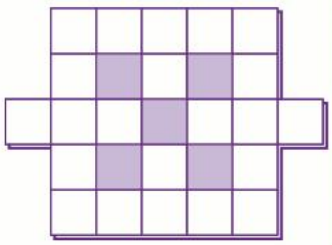
30. [Probability] *

A money bag has twenty 1-dollar coins and thirty 2-dollar coins. A coin is randomly selected from the bag. What is the probability of selecting a 2-dollar coin? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

Fill in the cross number puzzle using the following numbers:

2 digits: 65, 67
3 digits: 581, 849
5 digits: 34 483, 34 653, 37 772, 31 832



32. [Problem Solving 2] *

The last digit of a six-digit number is 2. If the 2 is moved to the start of the number, the new six-digit number is only a third of the original number. Find the original number.

$$\begin{array}{r} 2\,A\,B\,C\,D\,E \\ \times\qquad\quad 3 \\ \hline A\,B\,C\,D\,E\,2 \end{array}$$

MATHS MATE

Term 2 - Sheet 6

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$7470 \div 30 =$

2. [Decimal +,−] *

$9.003 + 5.7 =$

3. [Decimal ×,÷]

$0.2 \times 0.3 =$

4. [Fraction +,−] *

$5\frac{7}{9} - 3\frac{4}{9} =$

5. [Fraction ×,÷] *

$\frac{2}{3} \div \frac{5}{6} =$

6. [Percentages] *

Hugh slept for 10% of the one and a half hour flight from Auckland to Christchurch. How many minutes did Hugh spend napping?

7. [Decimals / Fractions / Percentages] *

Write 0.06 as a fraction in simplest form.

8. [Integer +,−]

$(-7) - (-1) =$

9. [Integer ×,÷]

$(-22) \div (-11) =$

10. [Rates / Ratios] *

The Peregrine Falcon is the fastest animal on earth. It can dive 2700 m in 30 seconds. What is its average speed?

m/s

11. [Indices] *

Evaluate 3×3^2

12. [Square Roots] *

$3\sqrt{36} =$

13. [Exploring Number]

1.82×10^{-6} is the scientific notation for:

A) 0.000182
B) 1.82000000
C) 0.00000182

14. [Financial Mathematics] *

Ahmed sells a house for $148 000 and earns 3% commission. How much is Ahmed's commission?

$

15. [Number Patterns]

Complete the pattern:

$\frac{1}{16}, \frac{1}{4}, 1, 4, 16,$ ___ , ___

16. [Expressions]

Choose the like terms:

$x^2, 5x^2, 5x$

17. [Substitution] *

If $y = 8 - x$, find y when $x = 8$

18. [Expansion]

Expand $5x(3 - x)$

19. [Factorisation] *

Factorise and evaluate

$123 \times 50 - 123 \times 49$

20. [Equations] *

Solve for x: $2(x - 4) = 6$

21. [Coordinate Geometry] *

Find the y-intercept of the line defined by the equation $4x - y = 3$

22. [Units of Measurement / Time] *

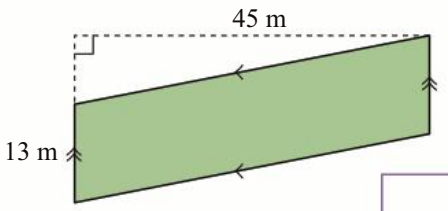
Express in seconds:

3 minutes and 35 seconds =

QUOTE OF THE WEEK: The crime is not to avoid failure. The crime is not to give triumph a chance. Huw Wheldon

23. [Perimeter / Area] *

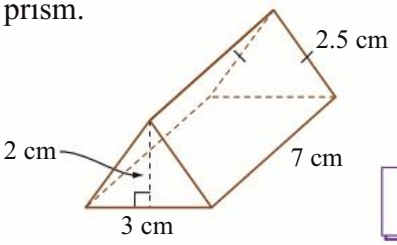
Find the area of the parallelogram.



m^2

24. [Surface Area] *

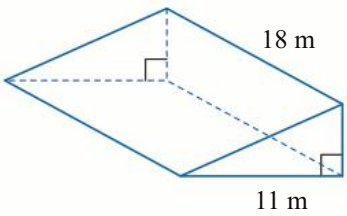
Find the total surface area of the triangular prism.



cm^2

25. [Volume] *

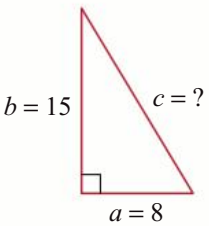
Find the volume of the triangular prism.



m^3

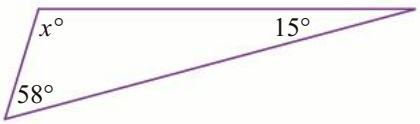
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $a^2 + b^2 = c^2$. Find the length of the hypotenuse.



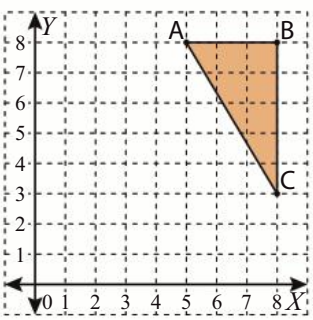
27. [Angles] *

Find the value of $x°$.



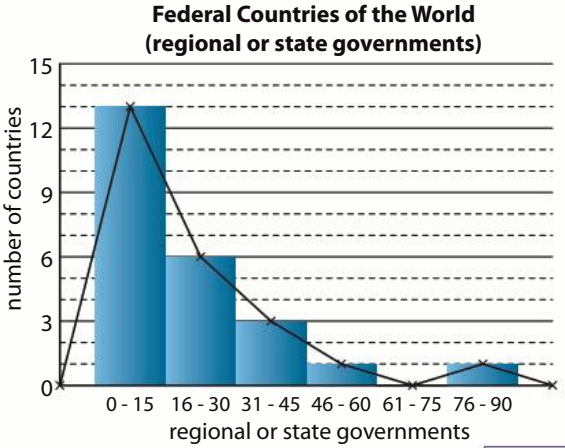
28. [Geometric Reasoning]

Redraw the triangle ABC after translating it –4 units horizontally and –3 units vertically.



29. [Statistics]

How many federal countries are there in the world?



30. [Probability] *

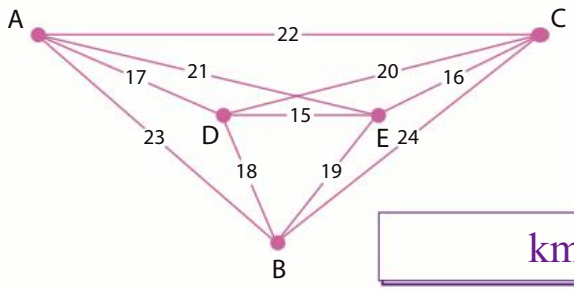
In Lotto, 45 balls numbered from 1 to 45 are mixed, and one ball at a time is selected at random. For the first ball find the probability that it is a number greater than 30. [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

I reduced a diagram on my computer using a scale factor of 80% (i.e. the linear dimensions of the diagram were reduced so they became 80% of the original dimensions). What scale factor is required to return the diagram to its original size?

32. [Problem Solving 2] *

The network below displays five cities (A, B, C, D and E) and their distances in kilometres from each other. Find the distance of the shortest route possible that begins at city A, visits the other four cities and returns to city A.



km

MATHS MATE

Term 2 - Sheet 7

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$32\,200 \div 20 =$

2. [Decimal +,–] *

$0.06 + 1.205 =$

3. [Decimal ×,÷] *

$19.4 \times 0.06 =$

4. [Fraction +,–] *

$4\frac{3}{7} + 2\frac{4}{7} =$

5. [Fraction ×,÷] *

$\frac{5}{8} \div \frac{5}{6} =$

6. [Percentages] *

Australia is approximately 7 500 000 km^2 in area. Sand dunes cover 40% of this. How much of Australia is covered by sand dunes?

km^2

7. [Decimals / Fractions / Percentages] *

Write $\frac{13}{20}$ as a decimal.

8. [Integer +,–]

$(+4) - (-3) =$

9. [Integer ×,÷]

$(-24) \div (+3) =$

10. [Rates / Ratios] *

The Eurostar train takes around 20 minutes to cross the Euro Tunnel, which is 52 km long. What is the train's average speed through the tunnel?

km/h

11. [Indices] *

Evaluate $5^2 \times 5^2$

12. [Square Roots] *

$5\sqrt{64} =$

13. [Exploring Number]

48 000 000 000 written in scientific notation is:

A) 4.8×10^{10} B) 4.8×10^{9} C) 48×10^{8}

14. [Financial Mathematics] *

Bryce pays $240 000 for a property and sells it for 15% less. Calculate the loss.

$

15. [Number Patterns]

Complete the pattern:

4 , 20 , 100 , 500 , ___ , ___

16. [Expressions]

Choose the like terms:

$4a$, ab , $4ba$

17. [Substitution] *

If $y = 6x + 1$, find y when $x = 9$

18. [Expansion]

Expand $4m(5 + 3n)$

19. [Factorisation] *

Factorise and evaluate

$25 \times 6 + 25 \times 4$

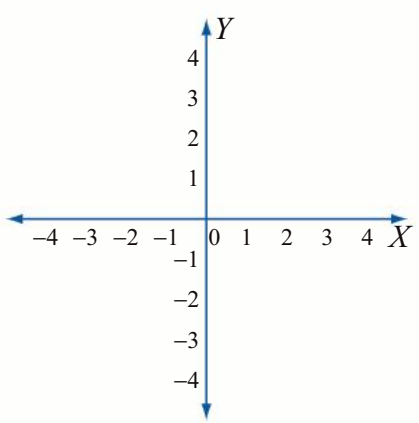
20. [Equations] *

Solve for x: $3(5 + x) = 9$

21. [Coordinate Geometry] *

Sketch the line of equation $y = -x - 4$ by marking the x-intercept and the y-intercept.

[Label the graph with the rule.]



QUOTE OF THE WEEK: The mind is likened to a household drainage system; keep filling it with rubbish and it will seize on you. P. K. Shaw

22. [Units of Measurement / Time] *

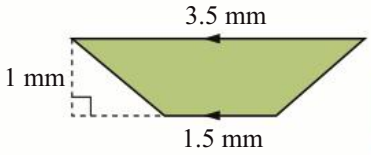
How much longer is P1 than P2?

School - Bell times									
8:35 9:25	9:25 10:10	10:10 10:45	10:45 11:15	11:15 12:00	12:00 12:45	12:45 1:40	1:40 2.30	2:30 3:15	3:15 4:45
P1	P2	Assembly or meetings	Recess	P3	P4	Lunch	P5 & roll	P6	Sport

min

23. [Perimeter / Area] *

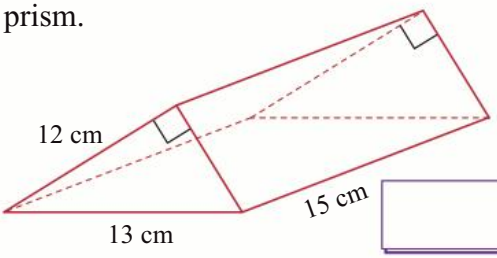
Find the area of the trapezium.



mm^2

24. [Surface Area] *

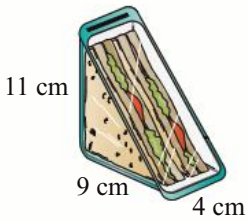
Find the total surface area of the triangular prism.



cm^2

25. [Volume] *

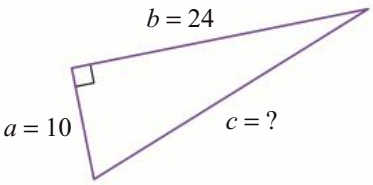
Find the volume of the triangular prism shaped package that contains the sandwich.



cm^3

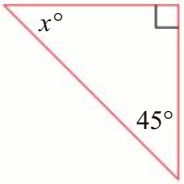
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $c^2 = a^2 + b^2$. Find the length of the hypotenuse.



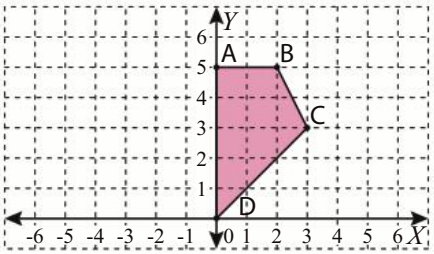
27. [Angles] *

Find the value of $x°$.



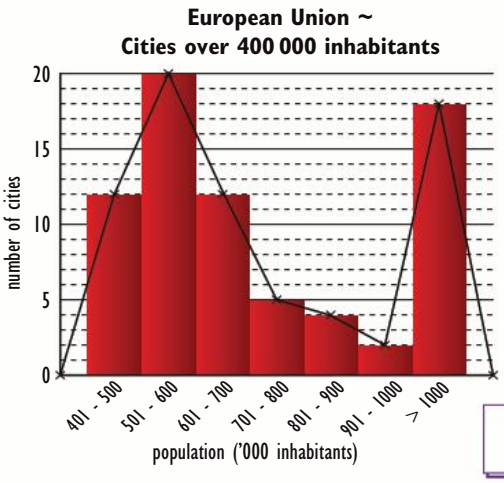
28. [Geometric Reasoning]

Redraw the quadrilateral ABCD after rotating it 90° anticlockwise about the origin of the Cartesian plane.



29. [Statistics]

How many European Union cities have a population of more than 800 000 people?



30. [Probability] *

Based on the car dealership figures, find the probability that a buyer, chosen at random, purchased a Hyundai. [Give your answer as a fraction in simplest form.]

CAR MODEL	SALES
Ford	90
Holden	140
Mitsubishi	55
Toyota	160
Hyundai	20
Nissan	15

31. [Problem Solving 1] *

Lisa had 60 lollies to share. She gave each of her friends the same number of lollies and had 5 left over for herself. If Lisa had fewer lollies than any of her friends, how many friends did Lisa share her lollies with?

32. [Problem Solving 2] *

Mia has these three number cards. She uses all three cards to make different 3-digit numbers. What is the mean of all the different numbers Mia can make in this way?

MATHS MATE

Term 2 - Sheet 8

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$13\,680 \div 40 =$

2. [Decimal +,–] *

$2.34 + 23.4 =$

3. [Decimal ×,÷] *

$3.762 \times 0.2 =$

4. [Fraction +,–] *

$3\frac{7}{12} - 1\frac{5}{12} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

In 1930 in the USA there were 3900 million movie goers. By 1970 this figure fell by 75%. How many million people went to the movies in the USA in 1970?

7. [Decimals / Fractions / Percentages] *

Russia holds a quarter of the world's natural gas resources. Write this as a decimal.

8. [Integer +,–]

$(-5) - (-4) =$

9. [Integer ×,÷]

$(+28) \div (-4) =$

10. [Rates / Ratios] *

The maximum cruise speed of the Airbus A380 is around 1000 km/h. At this speed, how long will it take an Airbus A380 to travel 12 000 km?

h

11. [Indices] *

Evaluate 10×10^3

12. [Square Roots] *

$4\sqrt{49} =$

13. [Exploring Number]

0.0000000019 written in scientific notation is:

A) 0.19×10^{-10}

B) 1.9×10^{-9}

C) 19×10^{-7}

14. [Financial Mathematics] *

Sara sells a car for $175 000 and earns 4% commission. What is Sara's commission?

$

15. [Number Patterns]

Complete the pattern:

$-2\ ,\ 4\ ,\ -8\ ,\ 16\ ,\ -32\ ,$ ___ , ___

16. [Expressions]

Choose the like terms:

$2\ ,\ 2m\ ,\ -2m\ ,\ m^2$

17. [Substitution] *

If $y = \frac{15}{x} - 7$, find y when $x = 1$

18. [Expansion]

Expand $3q(r - 2q)$

19. [Factorisation] *

Factorise and evaluate

$50 \times 11 + 50 \times 9$

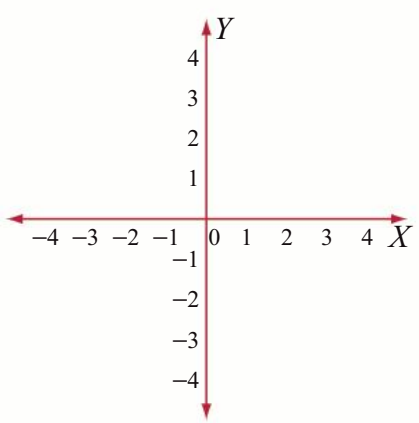
20. [Equations] *

Solve for x: $5(1 - x) = 20$

21. [Coordinate Geometry] *

Sketch the line of equation $y = 2x + 4$ by marking the x-intercept and the y-intercept.

[Label the graph with the rule.]



QUOTE OF THE WEEK: What we vividly imagine, ardently desire, enthusiastically act upon, must inevitably come to pass. Colin P. Sisson

22. [Units of Measurement / Time] *

Los Angeles time is 18 hours behind Sydney time. If the timetable contains local times only, how long does the afternoon flight QF11 from Sydney to Los Angeles take?

[Hint: Convert the Sydney departure time to Los Angeles time.]

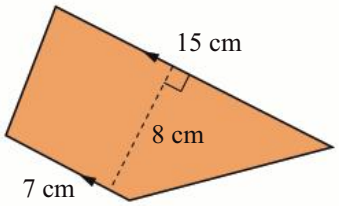
Flights Out: Sydney to Vancouver (Canada) - **Wednesday 10 July 2019**

From		To		Flight	Duration
09:35	Sydney	06:20	Los Angeles	QF11	18h 40m
08:30	Los Angeles	**11:15**	Vancouver	WS1701	
14:10	Sydney	09:55	Los Angeles	QF11	20h 30m
13:55	Los Angeles	**16:40**	Vancouver	QF3777	

h min

23. [Perimeter / Area] *

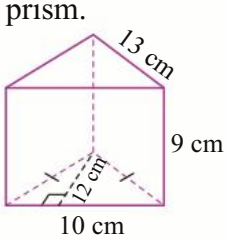
Find the area of the trapezium.



cm^2

24. [Surface Area] *

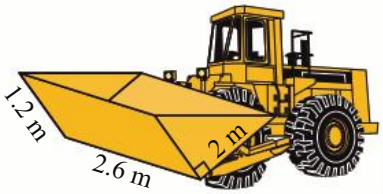
Find the total surface area of the triangular prism.



cm^2

25. [Volume] *

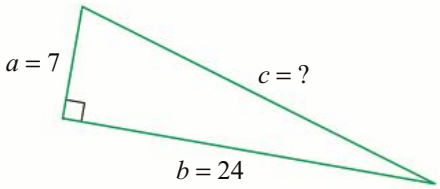
If the scoop on this front end loader is a triangular prism, find its capacity.



m^3

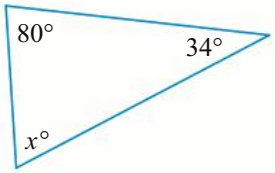
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $c^2 = a^2 + b^2$. Find the length of the hypotenuse.



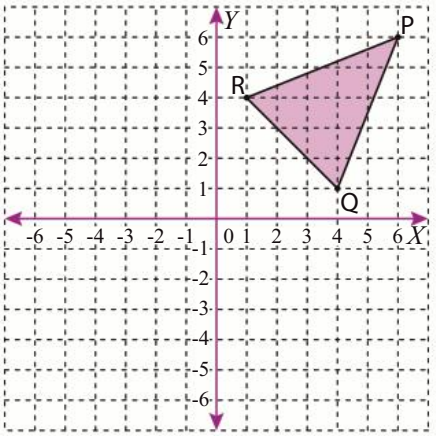
27. [Angles] *

Find the value of $x°$.



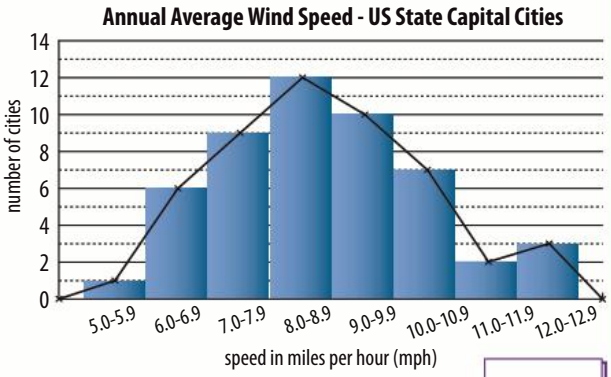
28. [Geometric Reasoning]

Redraw the triangle PQR after reflecting it in the y-axis and then translating it -7 units vertically.



29. [Statistics]

How many state capital cities have an annual average wind speed of greater than 8.9 mph?



30. [Probability] *

All thirty students in Maria's class speak English. Six of these students speak Chinese, another two Japanese and another four Russian. What is the probability that a student selected at random speaks two languages?

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

31. [Problem Solving 1] *

Carol's odometer reads 032719 km, with all digits being different. How many kilometres must she travel before the digits are all different again?

32. [Problem Solving 2] *

Harry, Annie and Mitch decided to paint the living room. Harry could paint the room by himself in 3 hours. Annie could do it in 4 hours and Mitch would take 6 hours on his own. If they all work together and don't get in each other's way, how long will the job take?

h

MATHS MATE

MAUVE

Worksheet Results

Term 3

Name: .....

Class: .....

Teacher: .....

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [Long ×,÷]	1	1	1	1	1.2	1	1	1	1	1.4,7
	2. [Decimal +,–]	2	2	2	2	2.2	2	2	2	2	2.4
	3. [Decimal ×,÷]	3	3	3	3	3.5	3	3	3	3	3.6
	4. [Fraction +,–]	4	4	4	4	4.5	4	4	4	4	4.6,9
	5. [Fraction ×,÷]	5	5	5	5	5.2	5	5	5	5	5.6
	6. [Percentages]	6	6	6	6	6.4,6	6	6	6	6	6.7
	7. [Decimals / Fractions / Percentages]	7	7	7	7	7.8,9	7	7	7	7	7.10,11
	8. [Integer +,–]	8	8	8	8	8.1	8	8	8	8	8.2
	9. [Integer ×,÷]	9	9	9	9	9.3	9	9	9	9	9.2
	10. [Rates / Ratios]	10	10	10	10	10.8,9	10	10	10	10	10.10,11
	11. [Indices]	11	11	11	11	11.3	11	11	11	11	11.4
	12. [Square Roots]	12	12	12	12	12.5	12	12	12	12	12.6
	13. [Exploring Number]	13	13	13	13	13.7	13	13	13	13	13.5,6
	14. [Financial Mathematics]	14	14	14	14	14.5	14	14	14	14	14.6
	15. [Number Patterns]	15	15	15	15	15.5	15	15	15	15	15.6
ALGEBRA	16. [Expressions]	16	16	16	16	16.4	16	16	16	16	16.5
	17. [Substitution]	17	17	17	17	17.5	17	17	17	17	17.6
	18. [Expansion]	18	18	18	18	18.4	18	18	18	18	18.5
	19. [Factorisation]	19	19	19	19	19.4	19	19	19	19	19.4
	20. [Equations]	20	20	20	20	20.5	20	20	20	20	20.6
	21. [Coordinate Geometry]	21	21	21	21	21.8,9	21	21	21	21	21.10,11
MEASUREMENT	22. [Units of Measurement / Time]	22	22	22	22	22.6	22	22	22	22	22.7
	23. [Perimeter / Area]	23	23	23	23	23.1,2	23	23	23	23	23.10
	24. [Surface Area]	24	24	24	24	24.5	24	24	24	24	24.6
	25. [Volume]	25	25	25	25	25.3	25	25	25	25	25.4
	26. [Pythagoras]	26	26	26	26	26.6	26	26	26	26	26.7
SPACE	27. [Angles]	27	27	27	27	27.5	27	27	27	27	27.6
	28. [Geometric Reasoning]	28	28	28	28	28.9	28	28	28	28	28.10
STAT.	29. [Statistics]	29	29	29	29	29.10	29	29	29	29	29.11
PROB.	30. [Probability]	30	30	30	30	30.3	30	30	30	30	30.4
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	Total Correct	◯	◯	◯	◯		◯	◯	◯	◯	

MATHS MATE

Term 3 - Sheet 1

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$426 \times 15 =$

2. [Decimal +,–] *

$13.4 - 2.08 =$

3. [Decimal ×,÷] *

$73.8 \div 3 =$

4. [Fraction +,–]

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

5. [Fraction ×,÷] *

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

6. [Percentages] *

2.5% of 500 =

7. [Decimals / Fractions / Percentages] *

Write 12% as a fraction in simplest form.

8. [Integer +,–]

$(-11) + (+16) =$

9. [Integer ×,÷]

$(+2) \times (-100) =$

10. [Rates / Ratios] *

20 : 30 is in proportion with 5 : 6

True or false?

11. [Indices]

Simplify $x^2 \times x^3$

12. [Square Roots]

$\sqrt{4} \times \sqrt{4} =$

13. [Exploring Number] *

$(14 - 5) \div (6 - 9) =$

14. [Financial Mathematics] *

James works a basic week of 40 hours and his hourly rate of pay is $19.50. Calculate his weekly wage before tax.

15. [Number Patterns]

Complete the pattern:

100 000 , 10 000 , 1000 , 100 , ___ , ___

16. [Expressions]

Simplify $4a - a$

17. [Substitution] *

Use $S = \frac{n(n+1)}{2}$ to find the sum S of the first n whole numbers when $n = 100$

18. [Expansion]

Expand $-4(f - 3)$

19. [Factorisation]

Factorise $x^2 + 4x$

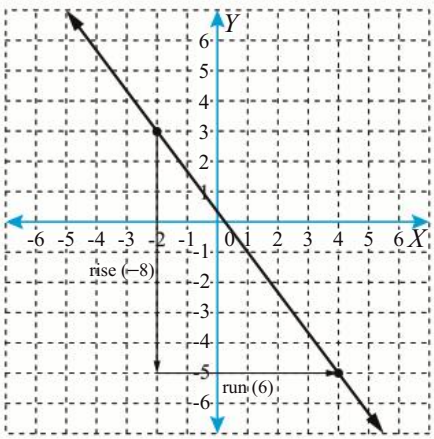
20. [Equations] *

Solve for x: $9x = x + 8$

21. [Coordinate Geometry] *

Find the gradient of the line passing through the points (–2,3) and (4,–5).

[Use the formula: gradient = $\frac{\text{rise}}{\text{run}}$]



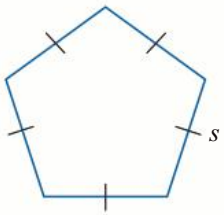
QUOTE OF THE WEEK: To be without something you want is an indispensable part of happiness. Bertrand Russell: Attrib.

22. [Units of Measurement / Time] *

Convert 250 millimetres to centimetres.

23. [Perimeter / Area] *

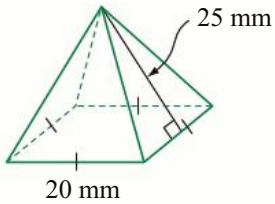
Write a formula for the perimeter P of the shape.



$P =$

24. [Surface Area] *

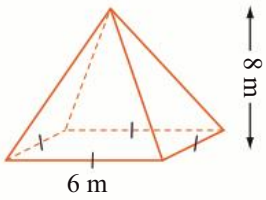
Find the total surface area of the regular square pyramid.



mm^2

25. [Volume] *

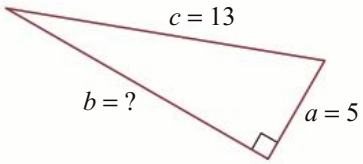
Using $V = \frac{1}{3} \times$ area of base $(B) \times$ height (h), find the volume of the square pyramid.



m^3

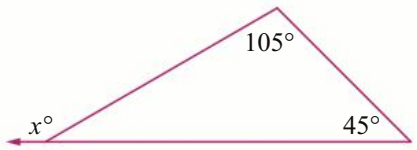
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $a^2 + b^2 = c^2$. Find the length of the side labelled b.



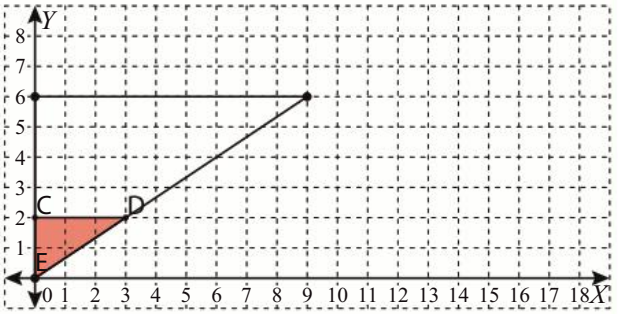
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning]

Find the scale factor of enlargement applied to triangle CDE to produce the larger triangle.



29. [Statistics]

Complete the stem-and-leaf plot for the set of data showing the number of medals won by Australia at each of the summer Olympics between 1956 and 2016:

35, 22, 18, 17, 17, 5, 9, 24, 14, 27, 41, 58, 49, 46, 35, 29

STEM	LEAF
0	5
1	
2	
3	
4	
5	

Key
4 | 2 = 42

30. [Probability] *

If the probability of winning the netball game is 0.7, what is the probability of not winning the game?

31. [Problem Solving 1] *

How much time is saved by driving 10 km at 120 km/h instead of 100 km/h?
[Is it worth the risk?]

min

32. [Problem Solving 2] *

A grandfather clock strikes at regular intervals. It strikes the number of hours on the hour, twice for every half hour and once for each of the remaining quarter hours. How many times does the clock strike in 24 hours?

MATHS MATE

Term 3 - Sheet 2

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$235 \times 17 =$

2. [Decimal +,–] *

$1.8 - 0.96 =$

3. [Decimal ×,÷] *

$23.15 \div 5 =$

4. [Fraction +,–]

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

5. [Fraction ×,÷] *

$\frac{1}{6} \times \frac{3}{10} =$

6. [Percentages] *

$33\frac{1}{3}\%$ of $120 =$

7. [Decimals / Fractions / Percentages] *

Write 80% as a fraction in simplest form.

8. [Integer +,–]

$(+4) + (-12) =$

9. [Integer ×,÷]

$(-300) \times (+2) =$

10. [Rates / Ratios] *

1 : 3 is in proportion with 3 : 12
True or false?

11. [Indices]

Simplify $m \times m^2$

12. [Square Roots]

$\sqrt{16} \times \sqrt{16} =$

13. [Exploring Number] *

$(-7 - 5) \times (1 - 5) =$

14. [Financial Mathematics] *

Carey's annual salary is $67 600 before tax. How much is his weekly salary before tax?

15. [Number Patterns]

Complete the pattern:

256 , 128 , 64 , 32 , 16 , ___ , ___

16. [Expressions]

Simplify $5k - 2k + k$

17. [Substitution] *

Use $V = \frac{lwh}{3}$ to find the volume V of a rectangular pyramid when $l = 4$, $w = 5$ and $h = 6$

18. [Expansion]

Expand $-(5 - 4j)$

19. [Factorisation]

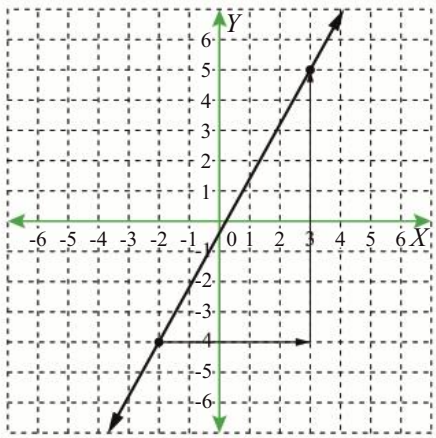
Factorise $u^2 - 3u$

20. [Equations] *

Solve for x: $4x - 12 = 2x$

21. [Coordinate Geometry] *

Find the gradient of the line passing through the points (–2,–4) and (3,5).



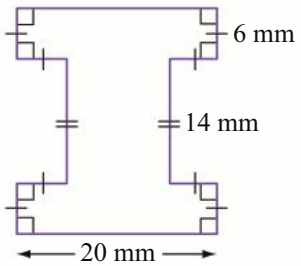
QUOTE OF THE WEEK: The difference between pedestrians and motorists is that the former usually apologise when they bump into one another. P. K. Shaw

22. [Units of Measurement / Time] *

The Kokoda Trail is 90 km in length. Is the Kokoda Trail <, = or > 9000 m?

23. [Perimeter / Area] *

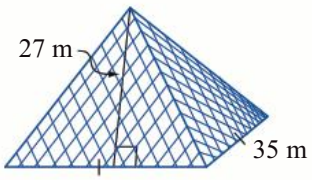
Find the perimeter of the shape.



mm

24. [Surface Area] *

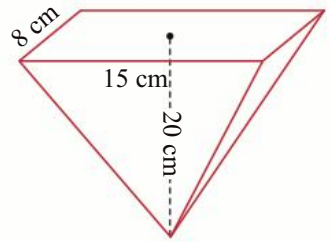
Find the glassed surface area of the regular square Pyramide du Louvre. [N.B. The base is not included.]



m^2

25. [Volume] *

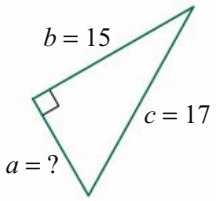
Using $V = \frac{Bh}{3}$ find the volume of the rectangular pyramid.



cm^3

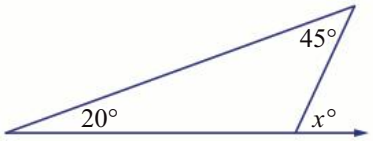
26. [Pythagoras] *

For this triangle use Pythagoras' theorem $a^2 + b^2 = c^2$. Find the length of the side labelled a.



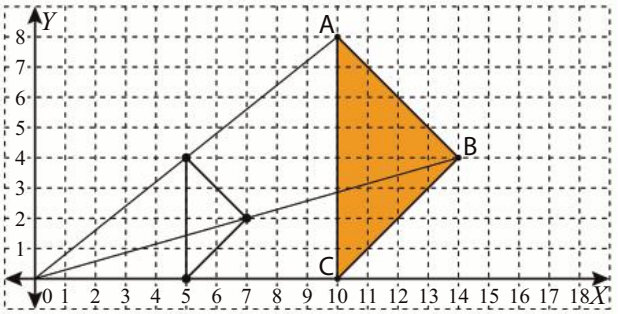
27. [Angles]

Find the value of $x°$.



28. [Geometric Reasoning]

Find the scale factor of reduction applied to triangle ABC to produce the smaller triangle.



29. [Statistics] *

Find the median of this set of data.

STEM	LEAF
10	0 5 9
11	4 6 6 8
12	0

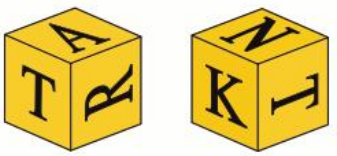
Key: 12 | 4 = 124

30. [Probability] *

If the probability of winning a prize in a raffle is 0.025, what is the probability of not winning a prize?

31. [Problem Solving 1] *

Two identical dice are shown. Which letter is on the face opposite the A?



32. [Problem Solving 2] *

Arrange the numbers 1 to 12 into six pairs so that the sum of each pair is a prime number, and all six prime numbers are different.

MATHS MATE

Term 3 - Sheet 3

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$392 \times 24 =$

2. [Decimal +,–] *

$0.095 - 0.03 =$

3. [Decimal ×,÷] *

$100.12 \div 4 =$

4. [Fraction +,–]

$5 - \frac{7}{10} =$

5. [Fraction ×,÷] *

$\frac{3}{11} \times \frac{2}{9} =$

6. [Percentages] *

1% of 80 =

7. [Decimals / Fractions / Percentages] *

Write $\frac{31}{50}$ as a percentage.

8. [Integer +,–]

$(-5) + (+14) =$

9. [Integer ×,÷]

$(-200) \times (-40) =$

10. [Rates / Ratios] *

Complete the missing term in the proportion:

$3 : \square = 5 : 35$

11. [Indices]

Simplify $t^3 \times t^3$

12. [Square Roots]

$\sqrt{4} \times \sqrt{25} =$

13. [Exploring Number] *

$-10 \times 6 - 28 \div 7 =$

14. [Financial Mathematics] *

Anna is paid $14.75 per hour. She works a 12 hour shift, the last 4 hours being at a double time pay rate. What is Anna's wage before tax?

15. [Number Patterns]

Complete the pattern:

192 , –96 , 48 , –24 , 12 , ___ , ___

16. [Expressions]

Simplify $3x + 3y + x$

17. [Substitution] *

Use $A = \frac{1}{2}h(a + b)$ to find the area A of a trapezium when $a = 15$, $b = 9$ and $h = 7$

18. [Expansion]

Expand $-m(2m + 1)$

19. [Factorisation]

Factorise $g - 6g^2$

20. [Equations] *

Solve for x: $8x = 3x - 5$

21. [Coordinate Geometry] *

Use $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$ to find the coordinates of the midpoint M of the interval joining the points (1,3) and (3,5).

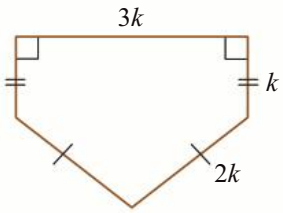
QUOTE OF THE WEEK: Rule Number 1: Don't sweat the small stuff. Rule Number 2: It's all small stuff. Dr. Robert S. Eliot

22. [Units of Measurement / Time] *

How many Christmas trees, 180 cm tall, would it take, end to end, to be as tall as a 90 metre high Mountain Ash tree?

23. [Perimeter / Area] *

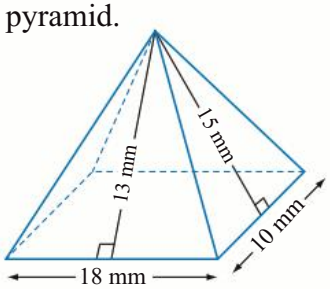
Write a formula for the perimeter P of the shape.



$P =$

24. [Surface Area] *

Find the total surface area of the rectangular pyramid.



mm^2

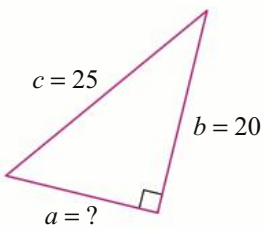
25. [Volume] *

The Great Pyramid of Giza is a square pyramid with a base length of 230 metres and a height of 147 metres. What is the volume of the pyramid?

m^3

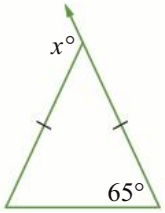
26. [Pythagoras] *

Using Pythagoras' theorem, find the length of the side labelled a.



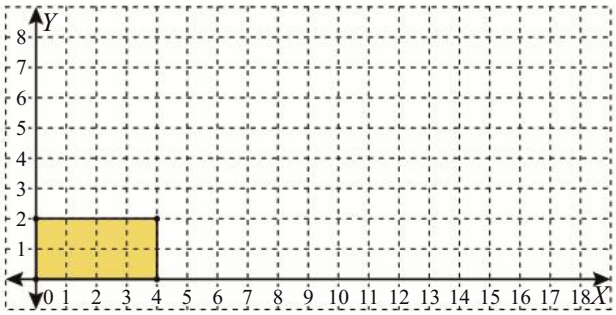
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning]

Redraw the rectangle enlarged by a scale factor of 3 about the origin of the axes.



29. [Statistics] *

The stem plot shows the life span of selected animals. Find the median and mode of the data.

STEM	LEAF
0	3 3 5 5 9
1	0 0 0 5 5 5 5 7
2	0 2 5 5
3	
4	0
5	
6	
7	0 0

Key
2 | 7 = 27 years

median = mode =

30. [Probability] *

If the probability of winning a division 4 lotto prize (4 winning numbers) is $\frac{1}{733}$, what is the probability of not winning a division 4 lotto prize?

31. [Problem Solving 1]

Find all the pairs of prime numbers that add to 36.

32. [Problem Solving 2] *

In the multiplication below, each of A, B and C represents a different digit. What is ABC?

$$\begin{array}{r} A\ B\ C \\ \times \quad\ 3 \\ \hline B\ B\ B \end{array}$$

MATHS MATE

Term 3 - Sheet 4

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$174 \times 28 =$

2. [Decimal +,–] *

$10.1 - 0.306 =$

3. [Decimal ×,÷] *

$162.4 \div 7 =$

4. [Fraction +,–]

$3 - \frac{5}{6} =$

5. [Fraction ×,÷] *

$\frac{4}{5} \times \frac{7}{12} =$

6. [Percentages] *

250% of 60 =

7. [Decimals / Fractions / Percentages] *

Nine tenths of a watermelon is water. Write this fraction as a percentage.

8. [Integer +,–]

$(-13) + (-8) =$

9. [Integer ×,÷]

$(+70) \times (-10) =$

10. [Rates / Ratios] *

Find the missing term in the proportion:

$\frac{10}{6} = \frac{x}{15}$

$x =$

11. [Indices]

Simplify $n^2 \times n^5$

12. [Square Roots]

$\sqrt{36} \times \sqrt{9} =$

13. [Exploring Number] *

$-20 + 6 \times (8 + 12) \div 4 - 3 =$

14. [Financial Mathematics] *

Hannah and Zach together earn $950 for an advertising drop. They earn equal hourly rates of pay. If Hannah worked for 10 hours and Zach for 9 hours, how much did Zach earn?

15. [Number Patterns]

Complete the pattern:

729 , –243 , 81 , –27 , 9 , ___ , ___

16. [Expressions]

Simplify $2m^2 - 2m + 3m^2$

17. [Substitution] *

Use $SI = PRT$ to find the simple interest SI when $P = 2000$, $R = 0.08$ and $T = 2$

18. [Expansion]

Expand $-2s(3t + 5s)$

19. [Factorisation]

Factorise $4y + 12y^2$

20. [Equations] *

Solve for x: $5x = 21 - 2x$

21. [Coordinate Geometry] *

Use $M = \left(\frac{x_1 + x_2}{2} , \frac{y_1 + y_2}{2} \right)$ to find the coordinates of the midpoint M of the interval joining the points (–1,4) and (–3,–2).

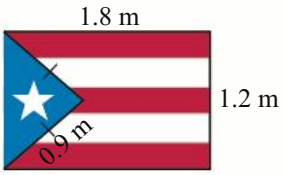
QUOTE OF THE WEEK: Make money your God and it will plague you like the devil. Henry Fielding

22. [Units of Measurement / Time] *

The world high jump record for men is 2.45 m. The world high jump record for women is 2.09 m. Express the difference in millimetres.

23. [Perimeter / Area] *

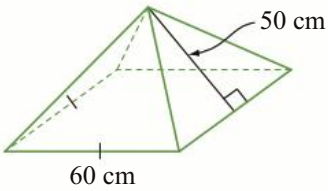
Find the perimeter around the striped portion of this Puerto Rican flag.



m

24. [Surface Area] *

Find the total surface area of the regular square pyramid.



cm^2

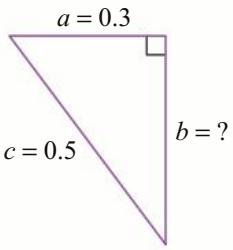
25. [Volume] *

The Luxor Hotel in Las Vegas is a square pyramid approximately 200 m wide at the base and 105 m high. Find the volume of the building.

m^3

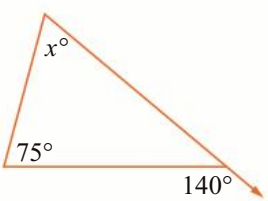
26. [Pythagoras] *

Using Pythagoras' theorem, find the length of the side labelled b.



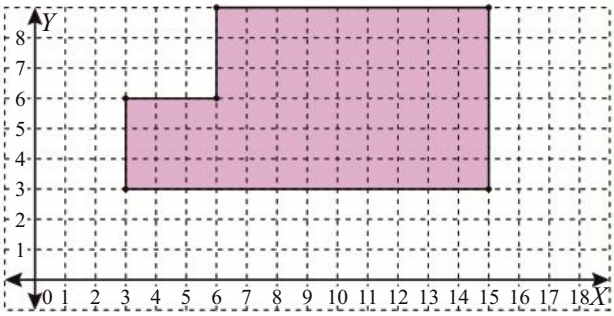
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning]

Redraw the shape reduced by a scale factor of $\frac{1}{3}$ about the point of coordinates (15,3).



29. [Statistics] *

The stem plot shows the points for and against West Coast during the 2018 Australian Football League home-and-away season. Find the difference between the medians of the two sets of data.

Points for		Points against
1	4	6
7 2	5	8 9
2	6	0 0 1 7 9
9 8 5	7	0 2 2 5
9 6 6 6	8	0 0 1 1 3 4 8 8
8 5 1	9	
2 2 1 0	10	8
	11	5
1	12	
9 0	13	
2	14	

Key
10 | 5 = 105

30. [Probability] *

The traffic lights at a certain intersection show red 55% of the time, yellow 10% and green the rest of the time. What is the probability that the lights will not be green at any given time? [Give your answer as a decimal.]

31. [Problem Solving 1] *

Find all the possible values for the integer n so that $\frac{9}{n+1}$ is also an integer.

[Hint: Integers are –3, –2, –1, 0, 1, 2.....]

MATHS MATE

Term 3 - Sheet 5

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$902 \div 11 =$

2. [Decimal +,–] *

$2.23 + 0.01 + 0.41 =$

3. [Decimal ×,÷]

$3.5 \div 10 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷] *

$3 \div \frac{2}{5} =$

6. [Percentages] *

Increase 900 by 1%.

7. [Decimals / Fractions / Percentages] *

Complete the table:

Decimal	Fraction	Percentage
0.03		

8. [Integer +,–]

$(-18) - (+5) =$

9. [Integer ×,÷]

$\frac{-18}{-3} =$

10. [Rates / Ratios] *

The ratio of strings to woodwind instruments in a baroque orchestra is 5 : 3. If there are 24 instruments in total, how many stringed instruments are there in the orchestra?

11. [Indices] *

Evaluate $2^9 \div 2^5$

12. [Square Roots] *

$\sqrt{400} \div \sqrt{16} =$

13. [Exploring Number]

Write 3×10^7 km^3, the total volume of the continental Antarctica ice sheet, as a basic numeral.

14. [Financial Mathematics] *

Holly's pay cheque is $1500 per fortnight. Holly's tax for the year is $11 000. How much is her yearly gross income?
[Assume 26 fortnights in a year.]

15. [Number Patterns] *

Find the 10th term in the pattern:

1 , 3 , 5 , 7 , 9 , ...

16. [Expressions]

Simplify $3 \times 5y$

17. [Substitution] *

If $y = 3(x + 1)$, find y when $x = 0$

18. [Expansion] *

Expand and simplify

$5(y + 1) - 2y$

19. [Factorisation]

Factorise $ab^2 - b$

20. [Equations] *

Solve for x: $\frac{8}{x} = 4$

21. [Coordinate Geometry] *

Write the equation $7x - y = 14$ in the gradient-intercept form $y = mx + c$, where m represents the gradient and c the y-intercept.

$y =$

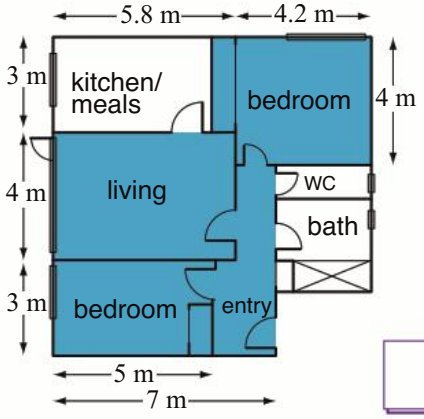
QUOTE OF THE WEEK: If it can't cry for you, don't cry for it. Sammy Newman

22. [Units of Measurement / Time] *

Convert 1234 milligrams to grams.

23. [Perimeter / Area] *

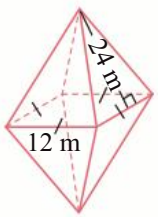
Find the total floor area to be carpeted.



m²

24. [Surface Area] *

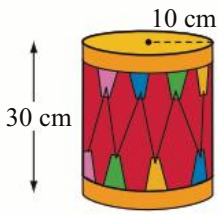
Find the total surface area of the octahedron.



m²

25. [Volume] *

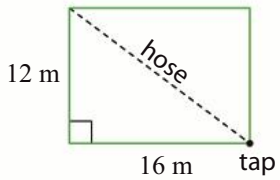
Using $V = \pi r^2 h$ and $\pi \approx 3.14$, find the volume of the drum.



cm³

26. [Pythagoras] *

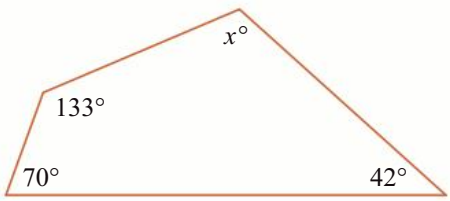
How long must the garden hose be to reach the furthest corner of the garden?



m

27. [Angles] *

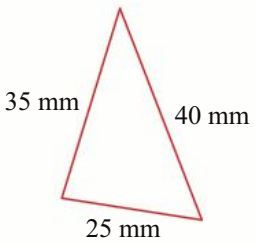
Find the value of $x°$.

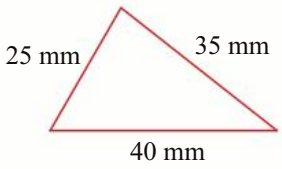


28. [Geometric Reasoning]

Which congruence test can be applied to show that these triangles are congruent?

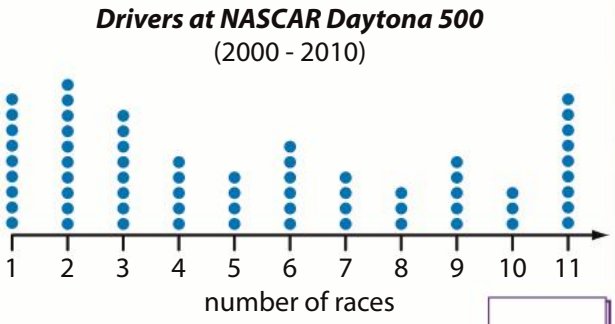
A) side-side-side (SSS)
B) side-angle-side (SAS)
C) angle-angle-side (AAS)
D) right-hypotenuse-side (RHS)





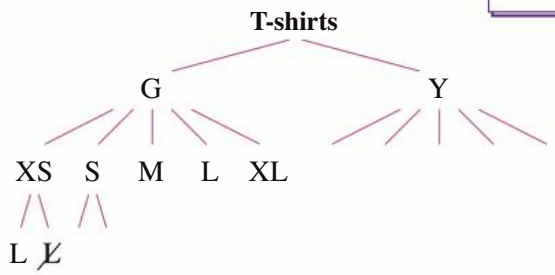
29. [Statistics]

How many drivers participated in the '*Daytona 500*' seven times between 2000 and 2010?



30. [Probability] *

The T-shirts on sale come in 2 colours (green, yellow) and in 5 sizes (XS, S, M, L, XL). The T-shirts can be purchased with or without a logo. Complete the tree diagram. What is the probability of choosing a medium (M) T-shirt with a logo? [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

What are the last two digits in the expansion of 5^{2012}?

32. [Problem Solving 2] *

How many numbers between 201 and 301 are divisible by both 3 and 4?

MATHS MATE

Term 3 - Sheet 6

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

2. [Decimal +,–] *

$12.1 + 1.8 + 0.2 =$

3. [Decimal ×,÷]

$50.7 \div 100 =$

4. [Fraction +,–] *

$\frac{7}{15} - \frac{1}{5} =$

5. [Fraction ×,÷] *

$4 \div \frac{2}{7} =$

6. [Percentages] *

Increase 80 by 15%.

7. [Decimals / Fractions / Percentages] *

Complete the table:

Decimal	Fraction	Percentage
0.125		

8. [Integer +,–]

$(-17) - (-12) =$

9. [Integer ×,÷]

$\frac{-28}{7} =$

10. [Rates / Ratios] *

A mower is fueled with petrol and oil in a ratio of 4 : 1. If the tank holds 1200 mL, how much oil is in the tank?

mL

11. [Indices] *

Evaluate $7^4 \div 7$

12. [Square Roots] *

$\sqrt{225} \div \sqrt{25} =$

13. [Exploring Number]

Write 4 600 000 000 years, the age of the Earth, in scientific notation.

14. [Financial Mathematics] *

Tim's gross wage is $3000 per fortnight. He pays 25% of the gross wage in tax and 9% of the gross wage in other deductions. Calculate Tim's net wage per fortnight.

[net wage = gross wage – total deductions]

15. [Number Patterns] *

Find the 20th term in the pattern:

2 , 4 , 6 , 8 , 10 , ...

16. [Expressions]

Simplify $2ab \times 4$

17. [Substitution] *

If $y = -2(x - 3)$, find y when $x = 3$

18. [Expansion] *

Expand and simplify

$3(w - 2) + 8$

19. [Factorisation]

Factorise $3m^2n + 2m$

20. [Equations] *

Solve for x: $\frac{4}{x} = \frac{2}{5}$

21. [Coordinate Geometry] *

Write the equation $3y - 9x = 18$ in the gradient-intercept form $y = mx + c$, where m represents the gradient and c the y-intercept.

$y =$

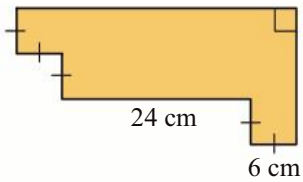
QUOTE OF THE WEEK: Realise what you really want. It stops you from chasing butterflies and puts you to work digging gold. William Moulton Marston

22. [Units of Measurement / Time] *

Weightlifter Leonid Taranenko, in 1988 in Canberra, lifted 266 kg in the 'clean and jerk'. Is this record <, = or > 26 600 g?

23. [Perimeter / Area] *

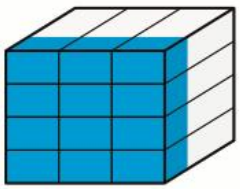
Find the area of the shape.

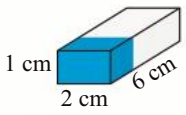


cm^2

24. [Surface Area] *

Lou bought a rectangular box containing 12 tightly packaged erasers. What is the total surface area of the box?

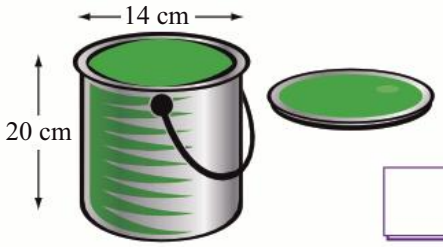




cm^2

25. [Volume] *

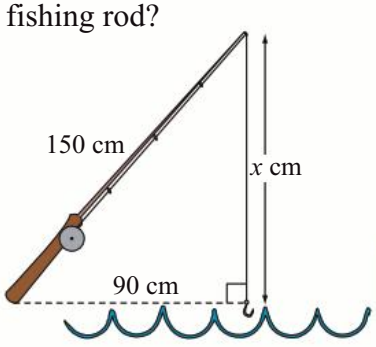
Using $\pi \approx \frac{22}{7}$ find the volume of the paint can.



cm^3

26. [Pythagoras] *

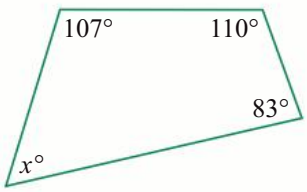
How long is the vertical fishing line on the fishing rod?



cm

27. [Angles] *

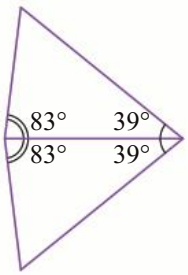
Find the value of $x°$.



28. [Geometric Reasoning]

Which congruence test can be applied to show that these triangles are congruent?

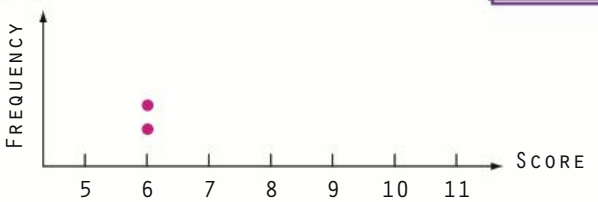
A) side-side-side (SSS)
B) side-angle-side (SAS)
C) angle-side-angle (ASA)
D) right-hypotenuse-side (RHS)



29. [Statistics] *

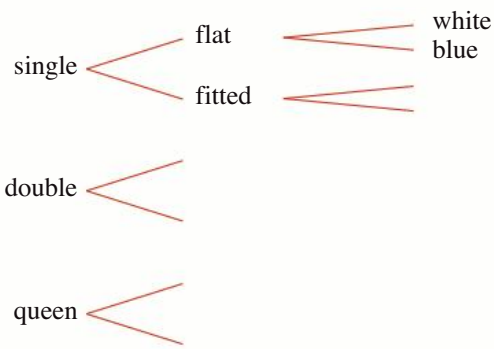
Complete the dot plot and find the median of the following data:

~~6~~, ~~6~~, 5, 11, 7, 8, 9, 8, 8, 9



30. [Probability] *

The sheets displayed for sale on a table come in 3 bed sizes (single, double, queen) and in 2 styles (flat and fitted). Each style comes in 2 colours (white and blue). Complete the tree diagram. What is the probability of choosing a double bed sheet from the sale table? [Give your answer as a fraction in simplest form.]

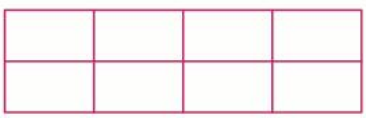


31. [Problem Solving 1] *

Find the sum of the first 20 odd numbers.

32. [Problem Solving 2] *

How many rectangles are in the diagram?



MATHS MATE

Term 3 - Sheet 7

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$4650 \div 25 =$

2. [Decimal +,–] *

$2.31 + 0.05 - 0.3 =$

3. [Decimal ×,÷]

$0.9 \div 100 =$

4. [Fraction +,–] *

$\frac{1}{10} - \frac{3}{50} =$

5. [Fraction ×,÷] *

$9 \div \frac{3}{8} =$

6. [Percentages] *

Increase 400 by 12%.

7. [Decimals / Fractions / Percentages] *

Since 1973, 10 male tennis players have been world number one for 80 or more weeks, and two fifths of these are American. How many Americans is this?

8. [Integer +,–]

$(+16) - (-7) =$

9. [Integer ×,÷]

$\frac{24}{-8} =$

10. [Rates / Ratios] *

The ages of mother and son are in a ratio of 10 : 3. If the mother is 40 years old, how old is the son?

years

11. [Indices] *

Evaluate $\frac{3^6}{3^2}$

12. [Square Roots] *

$\frac{\sqrt{2500}}{\sqrt{100}} =$

13. [Exploring Number]

The distance travelled by light in one year is 9 500 000 000 000 km. Write this in scientific notation.

14. [Financial Mathematics] *

Nate's taxable income is $47 000. What is the amount of tax payable on his income?

Taxable Income	Tax on this income*
0-$18 200	Nil
$18 201 - $37 000	19¢ for each $1 over $18 200
$37 001 - $90 000	$3572 plus 32.5¢ for each dollar over $37 000
$90 001 - $180 000	$20 797 plus 37¢ for each dollar over $90 000
$180 001 and over	$54 097 plus 45¢ for each dollar over $180 000

*Resident tax rates 2019-2020 (Australia)

15. [Number Patterns] *

Find the 10th term in the pattern:

2 , 4 , 8 , 16 , 32 , ...

16. [Expressions]

Simplify $-3l \times 4m$

17. [Substitution] *

If $y = x(x - 4)$, find y when $x = 7$

18. [Expansion] *

Expand and simplify

$10c + c(c - 4)$

19. [Factorisation]

Factorise $8b - 6ab^2$

20. [Equations] *

Solve for x: $\frac{2x - 6}{4} = 5$

21. [Coordinate Geometry] *

Complete the table:

equation	gradient (m)	x-intercept	y-intercept (c)
$y = 3x + 4$			

QUOTE OF THE WEEK: One joy scatters a hundred griefs. Chinese Proverb

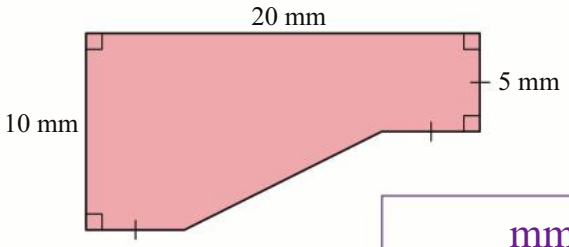
22. [Units of Measurement / Time] *

The 'Lesser Star of Africa' diamond on the front of the 'Imperial State Crown' worn by the British monarchy is 317.4 carats in size. If a carat is equivalent to 0.2 g, what is the weight of the diamond?

g

23. [Perimeter / Area] *

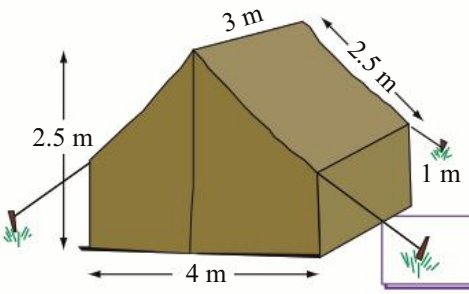
Find the area of the polygon.



mm^2

24. [Surface Area] *

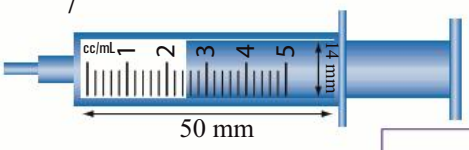
Find the surface area of the tent canvas without the floor.



m^2

25. [Volume] *

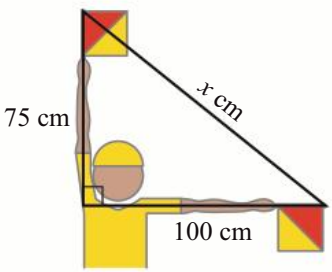
Find the total volume of the cylindrical syringe of diameter 14 mm and length 50 mm, using $\pi \approx \frac{22}{7}$



mm^3

26. [Pythagoras] *

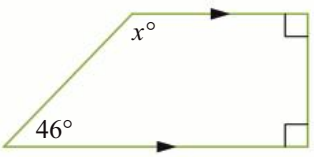
What is the distance between the flags when this semaphore is signalling the letter J as shown in the diagram?



cm

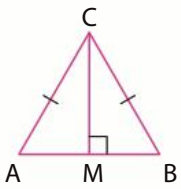
27. [Angles] *

Find the value of $x°$.



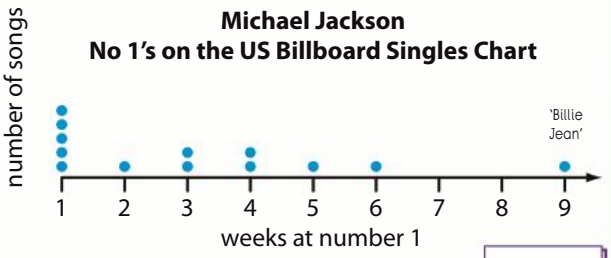
28. [Geometric Reasoning]

Which congruence test (SSS, SAS, AAS, RHS) can be applied to show that triangle AMC is congruent to triangle MBC?



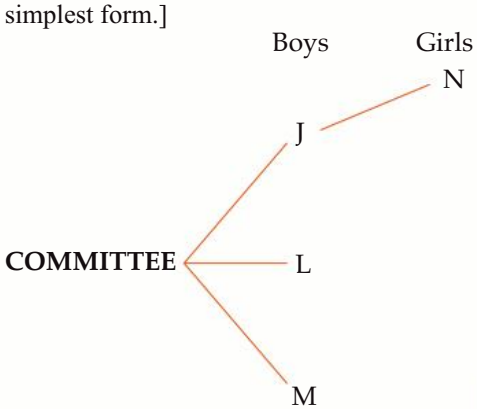
29. [Statistics] *

Michael Jackson had 13 songs that made it to number one on the US Billboard charts. What is the median number of weeks spent at number one for these songs?



30. [Probability] *

A committee consisting of one boy and one girl is to be selected from 3 boys (Jordan, Lee and Marco) and 4 girls (Nicole, Helen, Anna and Rita). Complete the tree diagram. Find the probability that Jordan is not a member of the committee. [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

If you have 50¢, \$1 and \$2 coins, in how many ways can you make up \$5?

32. [Problem Solving 2] *

What is the last digit in the expansion of 3^{100}?

MATHS MATE

Term 3 - Sheet 8

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$5306 \div 14 =$

2. [Decimal +,–] *

$7.4 + 1.46 - 0.04 =$

3. [Decimal ×,÷]

$0.062 \div 10 =$

4. [Fraction +,–] *

$\frac{3}{4} - \frac{9}{20} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

Increase 65 by 80%.

7. [Decimals / Fractions / Percentages] *

Of the 24 players who scored 2 goals or more at the 2010 FIFA World Cup, seven eighths were not from Brazil. How many of these players were not from Brazil?

8. [Integer +,–]

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

9. [Integer ×,÷]

$\frac{-35}{7} =$

10. [Rates / Ratios] *

The ratio of molars to all teeth in healthy human adults is 3 : 8. If adults have 32 teeth, how many molars do adults have?

11. [Indices] *

Evaluate $\frac{5^5}{5^4}$

12. [Square Roots] *

$\frac{\sqrt{144}}{\sqrt{9}} =$

13. [Exploring Number]

Write 400 billion, the number of stars in the Milky Way galaxy, in scientific notation.

14. [Financial Mathematics] *

Joanna's taxable income is $100 000. What is the amount of tax payable on her income?

Taxable Income	Tax on this income*
0-$18 200	Nil
$18 201 - $37 000	19¢ for each $1 over $18 200
$37 001 - $90 000	$3572 plus 32.5¢ for each dollar over $37 000
$90 001 - $180 000	$20 797 plus 37¢ for each dollar over $90 000
$180 001 and over	$54 097 plus 45¢ for each dollar over $180 000

*Resident tax rates 2019-2020 (Australia)

15. [Number Patterns] *

Find the 15th term in the pattern:

2 , 5 , 8 , 11 , 14 , ...

16. [Expressions]

Simplify $10v \times 4v$

17. [Substitution] *

If $y = (x + 1)(x - 5)$, find y when $x = 5$

18. [Expansion]

Expand

$12 + q(3p - 5)$

19. [Factorisation]

Factorise $c^2b - 4c^2d$

20. [Equations] *

Solve for x: $\frac{x+4}{3} = \frac{x-8}{5}$

21. [Coordinate Geometry] *

Complete the table:

equation	gradient (m)	x-intercept	y-intercept (c)
$y = \frac{2}{3}x + 1$			

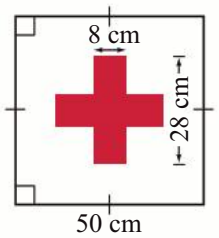
QUOTE OF THE WEEK: Katz's Law - Men and nations will act rationally when all other possibilities have been exhausted. Rossiter

22. [Units of Measurement / Time] *

New Yorkers create about 12 000 000 kg of rubbish per day. The Hoover dam is made from 8 400 000 tonnes of concrete. How many days of rubbish would be equivalent to the mass of the Hoover dam?

23. [Perimeter / Area] *

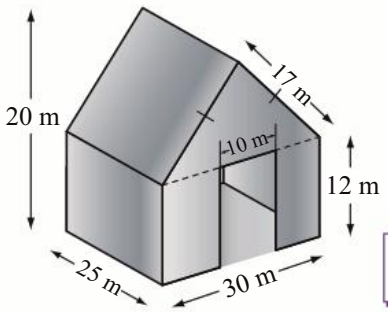
Given the International Red Cross is central on the flag, and both cross bars are congruent, what area of this flag is white?



cm^2

24. [Surface Area] *

Find the surface area of the steel warehouse excluding its floor and front door.

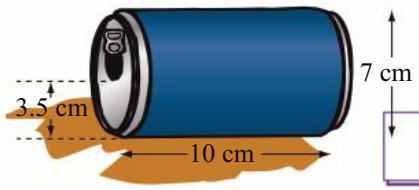


m^2

25. [Volume] *

Using $\pi \approx \frac{22}{7}$ find the volume of drink left in the can given that it remains half full.

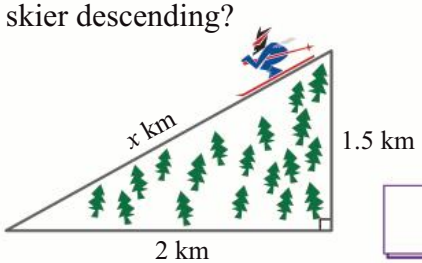
[Hint: 1 mL = 1 cm^3]



mL

26. [Pythagoras] *

How far down this mountain slope is the skier descending?



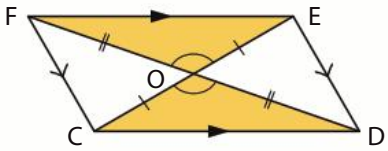
km

27. [Angles] *

Find the value of $x°$.

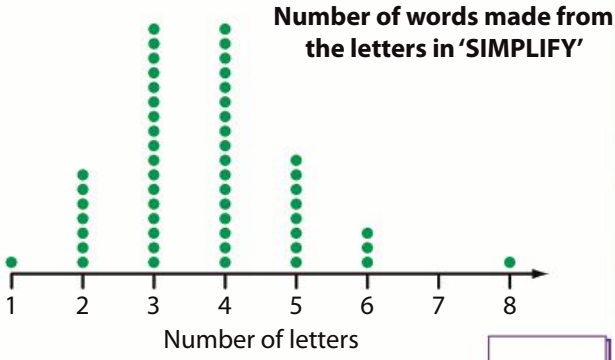
28. [Geometric Reasoning]

Which congruence test (SSS, SAS, AAS, RHS) can be applied to show that triangle COD is congruent to triangle EOF?



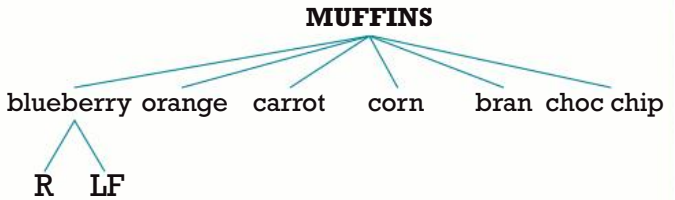
29. [Statistics] *

Of the total number of words that can be made from the letters in 'SIMPLIFY', how many letters are there in the median word?



30. [Probability] *

At the cafeteria, muffins are sold in the following flavours: blueberry, orange, carrot, corn, bran and choc chip. There are regular and low fat options for all flavours. Shirley chooses a muffin at random. Complete the tree diagram. What is the probability she chooses a low fat muffin? [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

A bag weighs 336 grams when full and 171 grams when half full. What does the bag weigh when empty?

g

32. [Problem Solving 2] *

What is the sum of the digits of all 2-digit numbers from 10 to 99?

MATHS MATE

MAUVE

Worksheet Results

Term 4

Name: .....

Class: .....

Teacher: .....

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [Long ×,÷]	1	1	1	1	1.3	1	1	1	1	1.4,8
	2. [Decimal +,–]	2	2	2	2	2.3	2	2	2	2	2.3
	3. [Decimal ×,÷]	3	3	3	3	3.7	3	3	3	3	3.8
	4. [Fraction +,–]	4	4	4	4	4.7,8,10,11	4	4	4	4	4.3,4
	5. [Fraction ×,÷]	5	5	5	5	5.2	5	5	5	5	5.7
	6. [Percentages]	6	6	6	6	6.8	6	6	6	6	6.9
	7. [Decimals / Fractions / Percentages]	7	7	7	7	7.12	7	7	7	7	7.13,14
	8. [Integer +,–]	8	8	8	8	8.3	8	8	8	8	8.3
	9. [Integer ×,÷]	9	9	9	9	9.1	9	9	9	9	9.4
	10. [Rates / Ratios]	10	10	10	10	10.12,13	10	10	10	10	10.14
	11. [Indices]	11	11	11	11	11.4	11	11	11	11	11.5,6
	12. [Square Roots]	12	12	12	12	12.7	12	12	12	12	12.5,6,7
	13. [Exploring Number]	13	13	13	13	13.8,9	13	13	13	13	13.9
	14. [Financial Mathematics]	14	14	14	14	14.7	14	14	14	14	14.8
	15. [Number Patterns]	15	15	15	15	15.7	15	15	15	15	15.8,9
ALGEBRA	16. [Expressions]	16	16	16	16	16.6	16	16	16	16	16.4
	17. [Substitution]	17	17	17	17	17.7	17	17	17	17	17.8
	18. [Expansion]	18	18	18	18	18.5	18	18	18	18	18.7
	19. [Factorisation]	19	19	19	19	19.6,7	19	19	19	19	19.8
	20. [Equations]	20	20	20	20	20.7	20	20	20	20	20.8,10
	21. [Coordinate Geometry]	21	21	21	21	21.12,13	21	21	21	21	21.14
MEASUREMENT	22. [Units of Measurement / Time]	22	22	22	22	22.8	22	22	22	22	22.9
	23. [Perimeter / Area]	23	23	23	23	23.3,4	23	23	23	23	23.11,12
	24. [Surface Area]	24	24	24	24	24.7	24	24	24	24	24.7
	25. [Volume]	25	25	25	25	25.4	25	25	25	25	25.5
	26. [Pythagoras]	26	26	26	26	26.8	26	26	26	26	26.9
SPACE	27. [Angles]	27	27	27	27	27.7	27	27	27	27	27.8
	28. [Geometric Reasoning]	28	28	28	28	28.11	28	28	28	28	28.12,13
STAT.	29. [Statistics]	29	29	29	29	29.12	29	29	29	29	29.13,14
PROB.	30. [Probability]	30	30	30	30	30.5	30	30	30	30	30.6
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	Total Correct										

MATHS MATE

Term 4 - Sheet 1

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$670 \times 150 =$

2. [Decimal +,–] *

$1 - 0.25 =$

3. [Decimal ×,÷] *

$5.8 \div 0.1 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷] *

$\frac{4}{5} \times \frac{5}{16} =$

6. [Percentages] *

Decrease 6000 by 7%.

7. [Decimals / Fractions / Percentages] *

Which is greater?

0.5 or $\frac{2}{3}$

8. [Integer +,–] *

$(+9) + (-2) + (+4) =$

9. [Integer ×,÷] *

$(-2) \times (+4) \times (+5) =$

10. [Rates / Ratios] *

The Horned Sungem, a hummingbird from South America, can beat its wings 5400 times a minute. What is the average rate in beats per second?

11. [Indices]

Simplify $w^8 \div w^2$

12. [Square Roots] *

$\sqrt{49} - \sqrt{25} =$

13. [Exploring Number]

Choose the whole numbers from this list:

$-6,\ 4,\ 3.14,\ 71,\ \frac{4}{5},\ 0$

14. [Financial Mathematics] *

Simple Interest = Principal × Rate × Time.

How much interest would Anthony earn if he invests $1000 for 2 years at an interest rate of 9% per year?

15. [Number Patterns] *

If the general rule of a sequence is $3n + 2$ find the 25th term ($n = 25$).

16. [Expressions]

Simplify $16a \div 4$

17. [Substitution] *

If $y = -x + 6$, find y when $x = -4$

18. [Expansion] *

Expand and simplify

$2(t - 5) + 6(t + 1)$

19. [Factorisation]

Factorise

$a(a + 4) + 3(a + 4)$

20. [Equations] *

Solve the inequality:

$3x - 4 \geq 8$

21. [Coordinate Geometry] *

Use $m = \frac{y_2 - y_1}{x_2 - x_1}$ to find the gradient of the line passing through the points (3,5) and (0,–7).

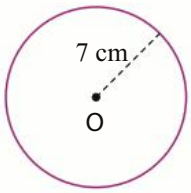
QUOTE OF THE WEEK: If we had everything we wanted, we wouldn't like what we had. William Feather

22. [Units of Measurement / Time] *

Convert 300 millilitres to litres.

23. [Perimeter / Area] *

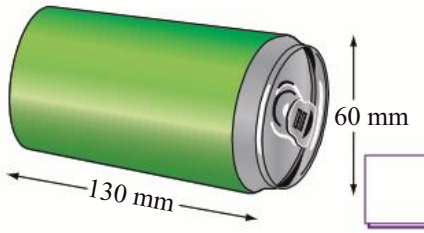
Using $C = 2\pi r$ where $\pi \approx \frac{22}{7}$, find the circumference of the circle.



cm

24. [Surface Area] *

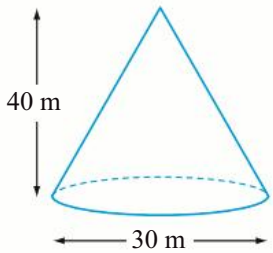
Using $TSA = 2\pi r(r + h)$ and $\pi \approx 3.14$, find the total surface area of the can.



mm^2

25. [Volume] *

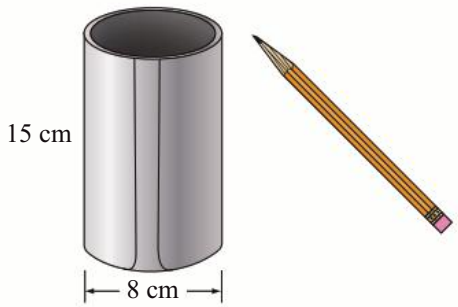
Using $V = \frac{\pi r^2 h}{3}$ and $\pi \approx 3.14$, find the volume of the cone.



m^3

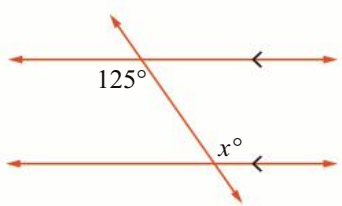
26. [Pythagoras] *

Would a pencil 18 cm long fit inside this tin with its lid on? [Objects not drawn to scale.]



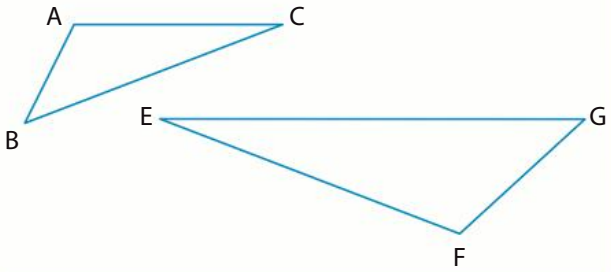
27. [Angles]

Find the value of $x°$.



28. [Geometric Reasoning]

Complete the pairs of equal angles for these similar triangles.



$\angle A =$, $\angle B =$, $\angle C =$

29. [Statistics]

How many scores are there of 2 or less in the following distribution?

Score	0	1	2	3	4
Frequency	7	11	4	3	1

30. [Probability] *

Two coins are tossed at the same time. Complete the table. Find the probability of tossing a tail and a head. [Give your answer as a fraction in simplest form.]

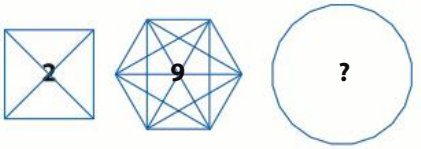
Possible outcomes		Coin 1	
		H	**T**
Coin 2	**H**	H,H	
	T		

31. [Problem Solving 1] *

On a quiz, a correct response is awarded 2 points, but 1 point is deducted for each error. Lu received 9 points for his 15 answers. How many correct responses did he make?

32. [Problem Solving 2] *

If each corner of a square is joined to every opposite corner, 2 diagonals will have been drawn. If opposite vertices of a hexagon are joined, there would be 9 diagonals. How many diagonals can be drawn in a regular polygon with 20 sides?



MATHS MATE

Term 4 - Sheet 2

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$342 \times 260 =$

2. [Decimal +,–] *

$10 - 0.07 =$

3. [Decimal ×,÷] *

$0.067 \div 0.1 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷] *

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

6. [Percentages] *

Reduce 3400 by 80%.

7. [Decimals / Fractions / Percentages] *

Which is greater?

40% or $\frac{1}{5}$

8. [Integer +,–] *

$(+7) + (+3) - (-5) =$

9. [Integer ×,÷] *

$(+6) \times (+2) \times (-2) =$

10. [Rates / Ratios] *

In Australia, the minimum rate of pay for adults is $18.93 per hour. At this rate what is the pay for an adult working 8 hours?

$

11. [Indices]

Simplify $a^6 \div a$

12. [Square Roots] *

$\sqrt{121} + \sqrt{81} =$

13. [Exploring Number]

Choose the integers from this list:

$13, -4.5, -100, 8, \frac{2}{15}, \frac{6}{3}$

14. [Financial Mathematics] *

Simple Interest = Principal × Rate × Time.

How much interest would Paul pay on his loan after 2 years if he owed $1200 at an interest rate of 15% per year?

15. [Number Patterns] *

If the general rule of a sequence is $2(n + 5)$ find the 17th term ($n = 17$).

16. [Expressions]

Simplify $9r \div 3r$

17. [Substitution] *

If $y = -10 - x$, find y when $x = -2$

18. [Expansion] *

Expand and simplify

$3(x - 3) + 7(x - 4)$

19. [Factorisation]

Factorise

$c(c - 2) + 5(c - 2)$

20. [Equations] *

Solve the inequality:

$2x + 1 < 7$

21. [Coordinate Geometry] *

Use $m = \frac{y_2 - y_1}{x_2 - x_1}$ to find the gradient of the line passing through the points (0,0) and (–5,1).

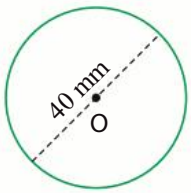
QUOTE OF THE WEEK: When a diplomat says yes, he means perhaps; when he says perhaps, he means no; and when he says no, he is no diplomat. Rossiter

22. [Units of Measurement / Time] *

The petrol tank of a ride on mower holds 0.004 m^3. What is its volume in cm^3?

23. [Perimeter / Area] *

Using $C = 2\pi r$ where $\pi \approx 3.14$, find the circumference of the circle.



mm

24. [Surface Area] *

Find the total surface area of the cylinder, using $\pi \approx \frac{22}{7}$

cm^2

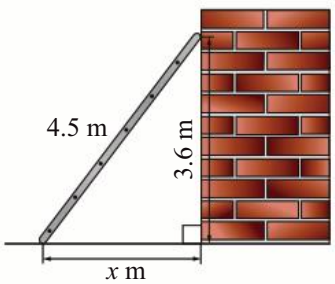
25. [Volume] *

Using $V = \frac{4\pi r^3}{3}$ and $\pi \approx \frac{22}{7}$, find the volume of the spherical globe of the gumball machine.

cm^3

26. [Pythagoras] *

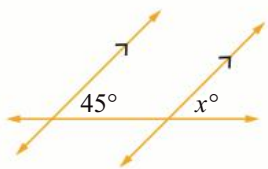
A 4.5 m long ladder is leaning 3.6 m up a wall. How far out from the base of the wall is the end of the ladder?



m

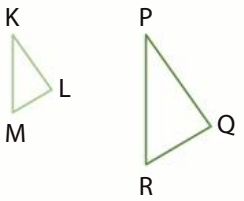
27. [Angles]

Find the value of $x°$.



28. [Geometric Reasoning]

Complete the ratios of corresponding sides for these similar triangles.



$\frac{KL}{\square} = \frac{LM}{\square} = \frac{KM}{\square}$

29. [Statistics] *

Find the median and range of the following distribution.

Score	9	6	3	1	0
Frequency	3	5	4	5	6

median = range =

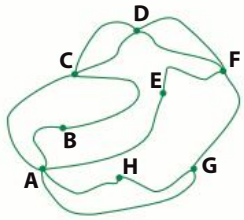
30. [Probability] *

A pair of standard dice are rolled. Complete the table. What is the probability of rolling at least one even number in the pair? [Give your answer as a fraction in simplest form.]

Possible outcomes		Die 1					
		1	**2**	**3**	**4**	**5**	**6**
Die 2	**1**	(1,1)	(1,2)				
	2	(2,1)					
	3	(3,1)					
	4						
	5						
	6						

31. [Problem Solving 1] *

If you start at point A and travel every road once and only once, at which point would you finish?



32. [Problem Solving 2] *

A farmer was asked how many cows he had on his property. He replied that he was unsure, but he knew that when he counted them by twos, threes, fours, fives or sixes, he always had one left over. The only way he could avoid this was to count by sevens; he then had none left over. What is the smallest number of cows the farmer could possibly have owned?

MATHS MATE

Term 4 - Sheet 3

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$157 \times 240 =$

2. [Decimal +,–] *

$100 - 0.57 =$

3. [Decimal ×,÷] *

$0.89 \div 0.01 =$

4. [Fraction +,–] *

$\frac{2}{9} - \frac{1}{12} =$

5. [Fraction ×,÷] *

$\frac{7}{15} \times \frac{5}{21} =$

6. [Percentages] *

Decrease 200 by 3%.

7. [Decimals / Fractions / Percentages] *

Place in ascending order:

$\frac{1}{2}$, 55%, 0.05

8. [Integer +,–] *

$(+8) - (+4) + (-9) =$

9. [Integer ×,÷] *

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

10. [Rates / Ratios] *

\$10/kg = ____ cents/kg

11. [Indices]

Simplify $\frac{k^6}{k^2}$

12. [Square Roots] *

$3\sqrt{16} + 2\sqrt{16} =$

13. [Exploring Number]

Is $-\frac{6}{12}$ a whole number, an integer or a rational number?

14. [Financial Mathematics] *

Derek invested \$850 at 6% simple interest for 5 years. Using $SI = PRT$, how much interest did Derek earn?

15. [Number Patterns] *

If the general rule of a sequence is $8 - \frac{n}{4}$ find the 40th term ($n = 40$).

16. [Expressions]

Simplify $-15tu \div 5u$

17. [Substitution] *

If $y = 12x$, find y when $x = -5$

18. [Expansion] *

Expand and simplify

$4(2vw + 1) + 3(vw - 5)$

19. [Factorisation]

Factorise

$3(g - 5) - g(g - 5)$

20. [Equations] *

Solve the inequality:

$\frac{x}{3} + 4 \leq 2$

21. [Coordinate Geometry] *

Use $y - y_1 = m(x - x_1)$ where $m = \frac{y_2 - y_1}{x_2 - x_1}$ to write the equation of the line passing through the points (–1,3) and (–4,0).

$y =$

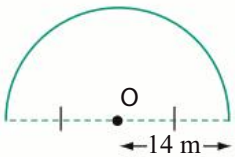
QUOTE OF THE WEEK: To make any gain, some outlay is necessary. Dutch Proverb

22. [Units of Measurement / Time] *

A manufacturer uses 1.5 L of water to make 1 L of cola drink. Express the difference in millilitres.

23. [Perimeter / Area] *

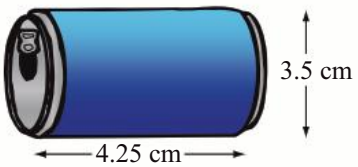
Using $\pi \approx \frac{22}{7}$ find the perimeter of the semicircle.



m

24. [Surface Area] *

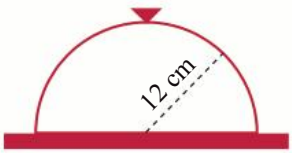
The kindergarten students are making labels to cover soft drink cans for a charity drive. Each label will cover the entire lateral area of a can. Using $\pi \approx \frac{22}{7}$ find the lateral area that needs to be covered for each can.



cm^2

25. [Volume] *

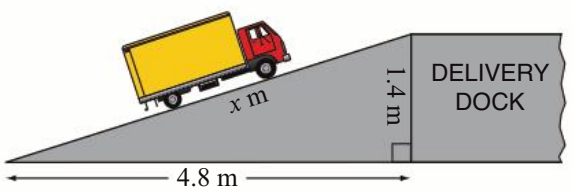
Find the volume of this lid in the shape of a hemisphere, using $\pi \approx 3.14$ [Round the answer to the nearest whole number.]



cm^3

26. [Pythagoras] *

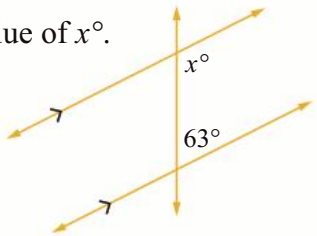
What is the total distance up the ramp that a truck must travel to reach the delivery dock?



m

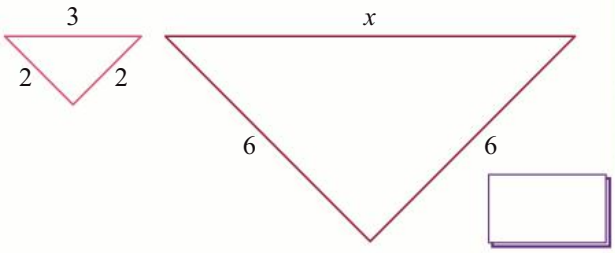
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning] *

Find the value of x in this pair of similar triangles. [All measurements are in cm.]



29. [Statistics] *

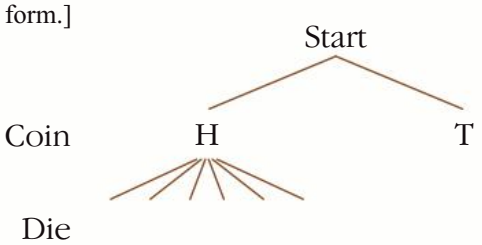
Find the median and mode of the following distribution.

Score	11	12	13	14	15
Frequency	4	3	5	3	1

median = mode =

30. [Probability] *

A coin is tossed and a standard die is rolled. Complete the tree diagram. What is the probability of tossing tails and rolling an odd number? [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

Find the value of the product:

$$\left(1+\frac{1}{2}\right)\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)$$

32. [Problem Solving 2] *

Three women and three children wish to cross a river in a canoe that will hold only one woman or two children. They can all row on their own but no one can swim. If a one way trip in the canoe takes ten minutes, what is the minimum time in which all six people can cross the river?

min

MATHS MATE

Term 4 - Sheet 4

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$268 \times 320 =$

2. [Decimal +,–] *

$10 - 0.0289 =$

3. [Decimal ×,÷] *

$23.04 \div 0.1 =$

4. [Fraction +,–] *

$\frac{1}{6} + \frac{3}{10} =$

5. [Fraction ×,÷] *

$\frac{5}{8} \times \frac{12}{15} =$

6. [Percentages] *

Reduce 350 by 40%.

7. [Decimals / Fractions / Percentages] *

Place in descending order:

70%, 0.72, $\frac{3}{4}$

8. [Integer +,–] *

$(-6) - (+7) - (+3) =$

9. [Integer ×,÷] *

$(-3) \times (+6) \times (-3) =$

10. [Rates / Ratios] *

3 km/min = ____ km/h

11. [Indices]

Simplify $\frac{r^5}{r^4}$

12. [Square Roots] *

$4\sqrt{64} + \sqrt{64} =$

13. [Exploring Number]

Is $\sqrt{2}$ a rational or an irrational number?

14. [Financial Mathematics] *

Find the balance of an account with \$900 invested at a 3% simple interest rate for 4 years. [Hint: Principal + interest.]

15. [Number Patterns] *

If the general rule of a sequence is $-16n$ find the 20th term ($n = 20$).

16. [Expressions]

Simplify $-24x^2 \div 6x$

17. [Substitution] *

If $y = \frac{75}{x}$, find y when $x = -3$

18. [Expansion] *

Expand and simplify

$k(k+1) - k(k-5)$

19. [Factorisation] *

Factorise

$v^2 + 6v + v + 6$

20. [Equations] *

Solve the inequality:

$\frac{x}{5} - 1 \leq 9$

21. [Coordinate Geometry] *

Use $y - y_1 = m(x - x_1)$ where $m = \frac{y_2 - y_1}{x_2 - x_1}$ to write the equation of the line passing through the points (1,7) and (–3,–1).

$y =$

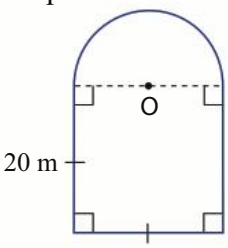
QUOTE OF THE WEEK: When we put ourselves in the other person's place, we're less likely to want to put him in his place.

22. [Units of Measurement / Time] *

Your set of measuring cups consists of one, a half, a third and a quarter cup measures. If one cup equals 240 millilitres, how many litres does your set hold?

23. [Perimeter / Area] *

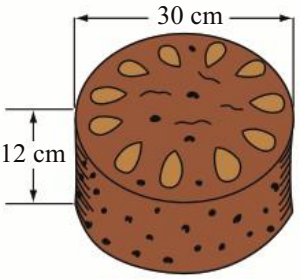
Using $\pi \approx 3.14$ find the perimeter of the shape.



m

24. [Surface Area] *

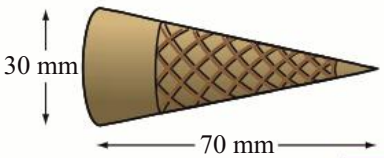
Using $\pi \approx 3.14$ find the surface area of the cylindrical cake, excluding its base.



cm^2

25. [Volume] *

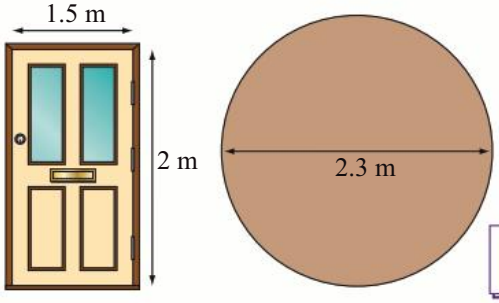
Using $\pi \approx \frac{22}{7}$ find the volume of the ice cream cone.



mm^3

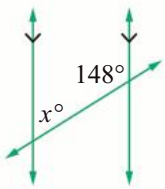
26. [Pythagoras] *

Can a circular table top with a diameter of 2.3 m fit through a rectangular door with dimensions 1.5 m wide and 2 m high?
[Objects not drawn to scale.]



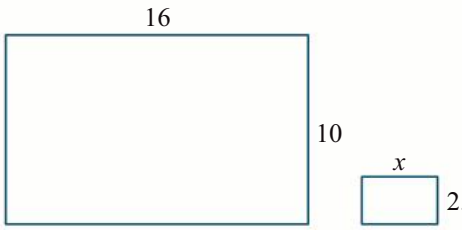
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning] *

Find the value of x in this pair of similar rectangles. [All measurements are in cm.]



29. [Statistics] *

Find the mean and mode of the following distribution.

Score	0	1	3	6	9
Frequency	5	6	4	5	2

mean = mode =

30. [Probability] *

A standard die is tossed and a spinner labelled 1, 2 and 3 is spun. Complete the table. What is the probability of obtaining a total of 7 when the die is tossed and the spinner is spun once?
[Give your answer as a fraction in simplest form.]

Total value		Die					
		1	2	3	4	5	6
Spinner	1	2	3				
	2	3	4				
	3						

31. [Problem Solving 1] *

How many numbers are there from 10 to 99 in which the digits differ by 4?

32. [Problem Solving 2] *

What is the last digit of the number 4^{2012}?

MATHS MATE

Term 4 - Sheet 5

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$965 \div 2 =$

2. [Decimal +,–] *

$7 - 1.3 =$

3. [Decimal ×,÷] *

$0.8 \div 0.2 =$

4. [Fraction +,–] *

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

5. [Fraction ×,÷] *

$\frac{2}{5} \div 3 =$

6. [Percentages] *

A meat pie contains 15% or 30 g of fat. What is the weight of the pie in grams?

7. [Decimals / Fractions / Percentages] *

$0.\dot{4}$ is the notation for:

A) 0.04444.....

B) 0.4444.....

C) 1.4444.....

8. [Integer +,–] *

$(-16) + (+9) + (-15) =$

9. [Integer ×,÷] *

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

10. [Rates / Ratios] *

Paper costs $6.50 for 500 sheets. What is the cost for 300 sheets?

$

11. [Indices]

Simplify $2a \times a^3$

12. [Square Roots] *

$2\sqrt{81} + 3\sqrt{25} =$

13. [Exploring Number]

Which is **not** a rational number?

A) -4.565 B) $\frac{25}{144}$

C) $\sqrt{900}$ D) π

14. [Financial Mathematics] *

Brendan's car is now worth $2700 or 10% of its original cost. How much did Brendan originally pay for the car?

15. [Number Patterns] *

position	1	2	3	4	5	....	n
term	4	6	8	10	12	....	?

The rule for the term in position n is:

A) $2n$ B) $2n + 1$

C) $2n + 2$ D) $3n + 1$

16. [Expressions] *

Simplify $9 + 3ab - ab - 4$

17. [Substitution] *

If $y = x^3 + 1$, find y when $x = 2$

18. [Expansion] *

Expand and simplify $(x + 1)(x + 2)$

19. [Factorisation] *

Factorise $b^2 - 16$

20. [Equations] *

Solve for x:

$(x + 1)(x - 4) = 0$

21. [Coordinate Geometry] *

Complete the table of values for the non-linear rule $y = x^2 + 4$ (parabola).

x	–2	–1	0	1	2
y	8				
(x,y)	(–2,8)				

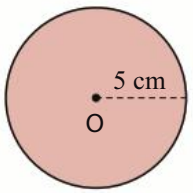
QUOTE OF THE WEEK: The First Law of Computing - To err is human, but to really foul things up requires a computer. Rossiter

22. [Units of Measurement / Time] *

Convert 5 m^2 to cm^2.

23. [Perimeter / Area] *

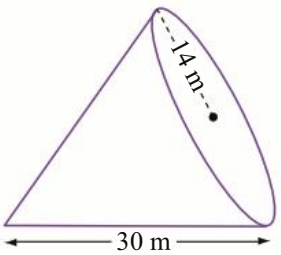
Using $A = \pi r^2$ where $\pi \approx 3.14$, find the area of the circle.



cm^2

24. [Surface Area] *

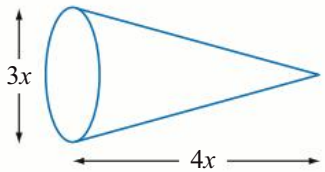
Use $TSA = \pi r(r + s)$ and $\pi \approx \frac{22}{7}$ to find the total surface area of the cone.



m^2

25. [Volume] *

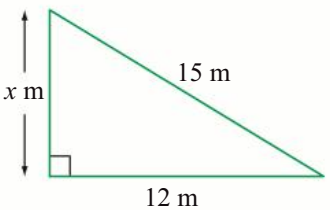
Write an algebraic expression for the volume V of the cone. [Express the answer in terms of x and π.]



$V =$

26. [Pythagoras] *

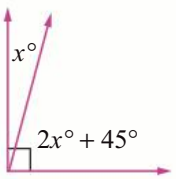
Find the perimeter of the right-angled triangle by first calculating the missing side length.



m

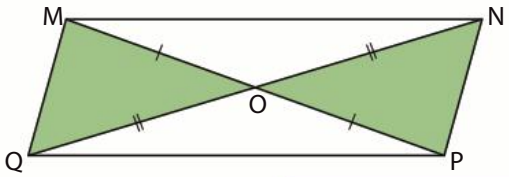
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning]

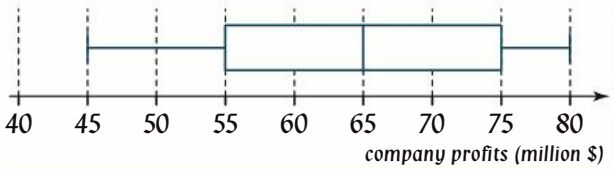
Write the pairs of equal sides and angles to prove that ΔMOQ and ΔNOP are congruent. Which congruence test did you use?



=
=
=
congruence test:

29. [Statistics] *

The box-and-whisker plot shows a set of company profits. Find the median and range.



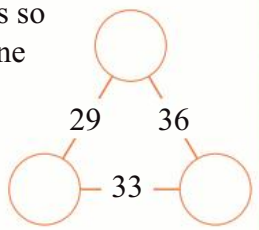
median = range =

30. [Probability] *

A 52-card deck of playing cards is shuffled, and one card is dealt from the top of the deck. What is the probability that it is a king of hearts or a spade? [Give your answer as a fraction in simplest form.]

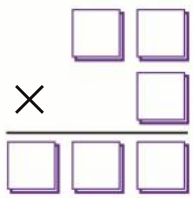
31. [Problem Solving 1] *

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



32. [Problem Solving 2] *

Place the digits 1, 2, 3, 4, 5 and 6 into the squares so that the multiplication problem is correct.



MATHS MATE

Term 4 - Sheet 6

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$804 \div 5 =$

2. [Decimal +,−] *

$3 - 0.75 =$

3. [Decimal ×,÷] *

$0.06 \div 0.006 =$

4. [Fraction +,−] *

$1\frac{5}{9} + 4\frac{7}{9} =$

5. [Fraction ×,÷] *

$\frac{4}{9} \div 3 =$

6. [Percentages] *

On average, 8% of the letters in a written passage are A's. If there are 112 letter A's in a passage, how many letters are there altogether?

7. [Decimals / Fractions / Percentages] *

$0.3\dot{7}$ is the notation for:

A) 0.373737.....
B) 0.333777.....
C) 0.3777.....

8. [Integer +,−] *

$(+8) + (-17) - (+5) =$

9. [Integer ×,÷] *

$(-7) \times (+7) \div (+7) =$

10. [Rates / Ratios] *

I can buy eight pencils for $2.80 How many pencils can I buy for $11.20?

11. [Indices]

Simplify $3y^2 \times 5y$

12. [Square Roots] *

$9\sqrt{16} \div \sqrt{4} =$

13. [Exploring Number]

Choose the rational numbers from this list:

$-4, \frac{6}{12}, 0.\dot{7}\dot{6}, \sqrt{5}, -\sqrt{9}$

14. [Financial Mathematics] *

The value of Harry's computer has depreciated by $360 or 30%. What was the purchase price of Harry's computer?

15. [Number Patterns] *

position	1	2	3	4	5	....	n
term	0.5	1.5	2.5	3.5	4.5	....	?

The rule for the term in position n is:

A) $n - 0.5$ B) $2n$
C) $\frac{n}{2}$ D) $\frac{n}{4}$

16. [Expressions] *

Simplify $2y + 6z - 5y - 4z$

17. [Substitution] *

If $a = 5$ and $b = 2$,
find the value of $\frac{a}{4} + \frac{b}{3}$

18. [Expansion] *

Expand and simplify
$(h - 2)(h + 3)$

19. [Factorisation] *

Factorise $144 - x^2$

20. [Equations] *

Solve for x:
$(x + 2)(x + 3) = 0$

21. [Coordinate Geometry] *

Complete the table of values for the non-linear rule $y = -4x^2$ (parabola).

x	−2	−1	0	1	2
y	−16				

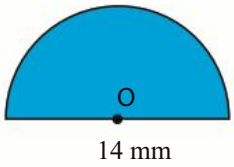
QUOTE OF THE WEEK: If we did all things we are capable of doing, we would literally astound ourselves. Thomas Edison

22. [Units of Measurement / Time] *

Convert 60 mm^2 to cm^2.

23. [Perimeter / Area] *

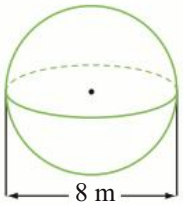
Using $A = \pi r^2$ where $\pi \approx \frac{22}{7}$, find the area of the semicircle.



mm^2

24. [Surface Area] *

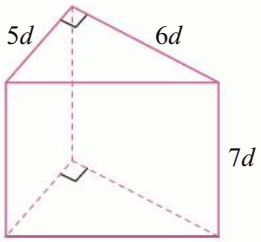
Using $TSA = 4\pi r^2$ and $\pi \approx 3.14$, find the total surface area of the sphere.



m^2

25. [Volume] *

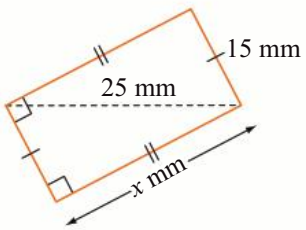
Write an algebraic expression for the volume V of the prism. [Express the answer in terms of d.]



$V =$

26. [Pythagoras] *

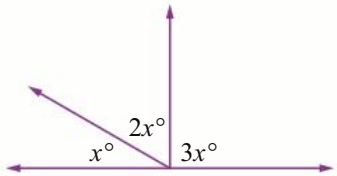
Find the perimeter of the rectangle by first calculating the missing side length.



mm

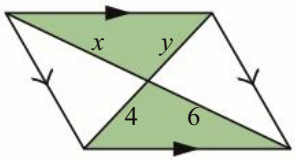
27. [Angles] *

Find the value of $x°$.



28. [Geometric Reasoning]

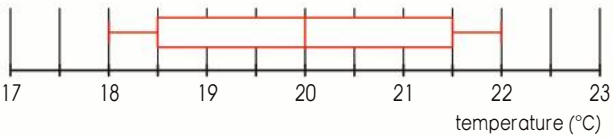
Find the value of x and y given the pair of shaded triangles are congruent.
[All measurements are in cm.]



$x =$ $y =$

29. [Statistics] *

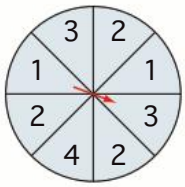
The box-and-whisker plot shows a set of average monthly minimum temperatures for Cook Islands. Find the median and range.



median = range =

30. [Probability] *

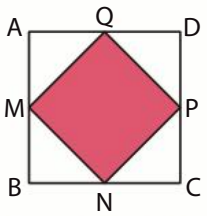
This spinner is spun once. What is the probability of spinning a 1 or a 3? [Give your answer as a fraction in simplest form.]



31. [Problem Solving 1] *

M, N, P and Q are the midpoints of the sides of square ABCD. What is the ratio of the area of square MNPQ to the area of square ABCD?

A) 1 : 2 B) 1 : 4 C) 2 : 1



32. [Problem Solving 2] *

At recess time five young students were discussing the new teacher.
"He's fabulously handsome, and only 32," said Macala.
"Nonsense!" cried Lauren. "He's not a day over 30."
"I'm sure he's at least 33," frowned Misty.
"He's definitely over 28," said Deanne.
But Zoe had the last word.
"I happen to know he's under 30," she sniffed.
Only one girl was right.
How old is the teacher?

MATHS MATE

Term 4 - Sheet 7

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$1221 \div 4 =$

2. [Decimal +,−] *

$8 - 0.374 =$

3. [Decimal ×,÷] *

$10.15 \div 0.7 =$

4. [Fraction +,−] *

$4\frac{3}{7} - 1\frac{4}{7} =$

5. [Fraction ×,÷] *

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

6. [Percentages] *

In Australia only 5% or 12 500 species of fungi are well known. How many species of fungi are in Australia altogether?

7. [Decimals / Fractions / Percentages] *

Write $\frac{1}{3}$ as a recurring decimal.

8. [Integer +,−] *

$(-17) - (+5) + (-4) =$

9. [Integer ×,÷] *

$(-10) \times (+10) \div (-4) =$

10. [Rates / Ratios] *

Gary prepared 3 kg of dough after working for 2 hours. Assuming his work rate is directly proportional, how much dough would Gary prepare if he worked for 7 hours?

kg

11. [Indices]

Simplify $4c^3 \div 2c^2$

12. [Square Roots] *

$\frac{10\sqrt{81}}{2\sqrt{9}} =$

13. [Exploring Number]

Which numbers are rational?

A) $\sqrt{25}$ B) $\sqrt{18}$

C) -7.7725 D) π

14. [Financial Mathematics] *

A book was discounted by 20% to $16.20. How much was the book before the discount?

15. [Number Patterns] *

Write an expression for the term in position n given the table of values for the sequence.

position	1	2	3	4	5	....	n
term	8	9	10	11	12	....	?

16. [Expressions] *

Simplify $3n^2 - n^2 - 2n - n^2$

17. [Substitution] *

If $y = \frac{2x-3}{x}$, find y when $x = 3$

18. [Expansion] *

Expand and simplify $(q+4)(q-6)$

19. [Factorisation] *

Factorise $4y^2 - 36$

20. [Equations] *

Solve for x: $x^2 - 25 = 0$

21. [Coordinate Geometry] *

Complete the table of values for the non-linear rule $y = \frac{1}{x}$ (hyperbola).

x	−2	−1	0	1	2
y	$-\frac{1}{2}$				

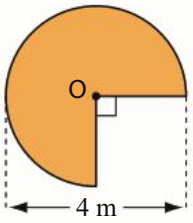
QUOTE OF THE WEEK: You can preach a better sermon with your life than with your lips. Oliver Goldsmith

22. [Units of Measurement / Time]

The Old Town Square in Prague is 9000 m^2. Is the square <, = or > 1 hectare?

23. [Perimeter / Area] *

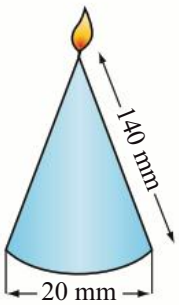
Using $\pi \approx 3.14$ find the area of the shaded shape.



m^2

24. [Surface Area] *

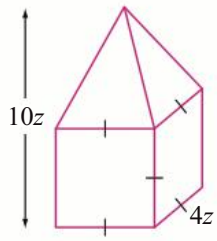
Use $\pi \approx 3.14$ to find the total surface area of the conical candle.



mm^2

25. [Volume] *

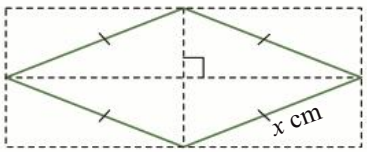
Write an algebraic expression for the volume V of the cube which has a regular square pyramid on top. [Express the answer in terms of z.]



$V =$

26. [Pythagoras] *

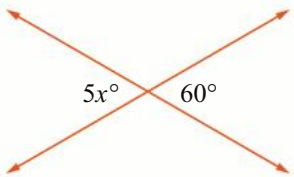
Find the perimeter of the rhombus by first calculating the missing side length.



cm

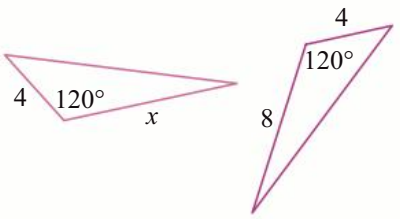
27. [Angles] *

Find the value of $x°$.



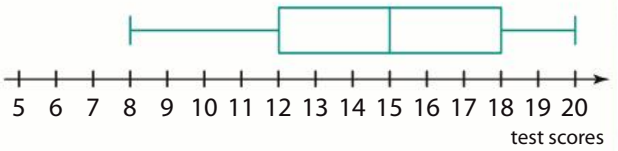
28. [Geometric Reasoning]

Find the value of x in this pair of congruent triangles. [All measurements are in cm.]



29. [Statistics] *

The box-and-whisker plot shows a set of Mathematics test scores. Find the median and lower quartile (LQ).



median = LQ =

30. [Probability] *

In a small town, 56% of the secondary school students attend the public high school, 28% go to the catholic college and the rest are enrolled in a TAFE course. What is the probability that a student chosen at random goes to the catholic college or to the TAFE institute? [Give your answer as a decimal.]

31. [Problem Solving 1] *

The table below shows the team standings after 2 rounds of the 2018 Soccer World Cup. Who did Croatia play in its third round robin game? [Each team plays each other team in the group once, and 3 points are awarded for a win, 1 for a draw and none for a lost game.]

GROUP D TEAMS	MP matches played	W wins	D draws	L losses	GF goals for	GA goals against	Pts points
Croatia	2	2	0	0	5	0	6
Nigeria	2	1	0	1	2	2	3
Iceland	2	0	1	1	1	3	1
Argentina	2	0	1	1	1	4	1

Croatia **vs** _____

32. [Problem Solving 2] *

A bi-athlete travels 50 km in $2\frac{1}{6}$ hours. She cycles part of the way at 30 km/h and runs the rest at 12 km/h. How far did she run?

km

MATHS MATE

Term 4 - Sheet 8

Name: .....

Due Date: ...../...../.....

Parent's Signature: .....

1. [Long ×,÷] *

$1894 \div 8 =$

2. [Decimal +,–] *

$16 - 0.041 =$

3. [Decimal ×,÷] *

$2.88 \div 0.9 =$

4. [Fraction +,–] *

$6\frac{1}{8} - 2\frac{3}{8} =$

5. [Fraction ×,÷] *

$\frac{5}{8} \div 15 =$

6. [Percentages] *

What is Australia's total indigenous labour force if 10% or 13 460 indigenous Australians work in sparsely settled areas?

7. [Decimals / Fractions / Percentages] *

Write $\frac{4}{9}$ as a recurring decimal.

8. [Integer +,–] *

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

9. [Integer ×,÷] *

$(+18) \div (-9) \times (-3) =$

10. [Rates / Ratios] *

A group of children worked together for 1.5 hours to plant 10 trees. Assuming their work rate is directly proportional, how many trees would they plant if they worked for 6 hours?

11. [Indices]

Simplify $6b^4 \div 3b$

12. [Square Roots] *

$4\sqrt{4} \times 5\sqrt{25} =$

13. [Exploring Number]

Choose the rational numbers from this list:

$-\frac{1}{2}, \pi, -60, \sqrt{\frac{3}{4}}, \sqrt{400}$

14. [Financial Mathematics] *

The value of a photocopier has depreciated by $3600 or 15%. What was the purchase price of the photocopier?

15. [Number Patterns] *

Write an expression for the term in position n given the table of values for the sequence.

position	1	2	3	4	5	....	n
term	4	8	12	16	20	....	?

16. [Expressions] *

Simplify

$4a^2 - ab - a^2 + 4ab$

17. [Substitution] *

If $y = x^2(x - 1)$, find y when $x = -2$

18. [Expansion]

Expand

$(m + 2)(n - 7)$

19. [Factorisation] *

Factorise

$25a^2 - 100$

20. [Equations] *

Solve for x: $x^2 - 64 = 0$

21. [Coordinate Geometry] *

Complete the table of values for the non-linear rule $y = 5^x$ (exponential function).

x	–2	–1	0	1	2
y	$\frac{1}{25}$				

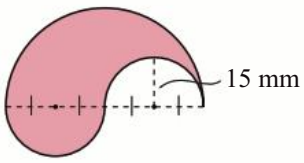
QUOTE OF THE WEEK: Whatever you do or dream you can, begin it. Boldness has genius, power and magic in it. Begin it now. Goethe

22. [Units of Measurement / Time] *

New South Wales has 1400 hectares of islands and the Northern Territory has 13 387 km^2. Which has the largest area of islands?

23. [Perimeter / Area] *

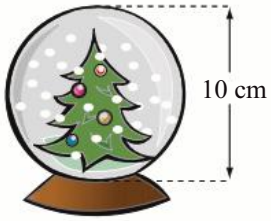
Find the area of the shaded shape. (Use $\pi \approx 3.14$)



mm^2

24. [Surface Area] *

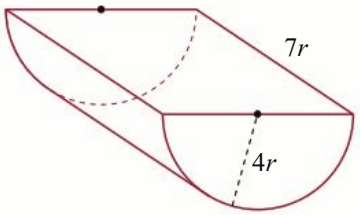
Using $TSA = 4\pi r^2$ and $\pi \approx 3.14$, find the total surface area of the snow globe.



cm^2

25. [Volume] *

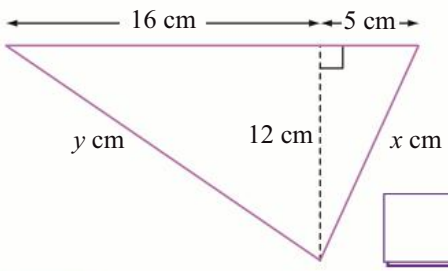
Write an algebraic expression for the volume V of the half cylinder. [Express the answer in terms of r and π.]



$V =$

26. [Pythagoras] *

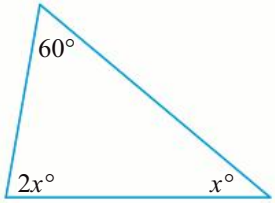
Find the perimeter of the triangle by first calculating the missing side lengths.



cm

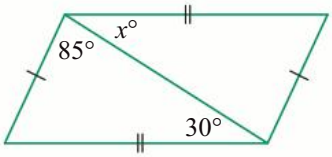
27. [Angles] *

Find the value of $x°$.



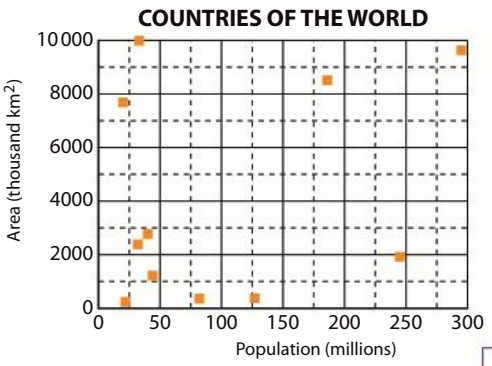
28. [Geometric Reasoning]

Find the value of $x°$ in this pair of congruent triangles.



29. [Statistics]

Of the countries sampled in the graph, how many with a population of less than 100 million people have an area greater than 5 million square kilometres?



30. [Probability] *

There are 12 choc chip, 3 milk choc macadamia, 13 rainbow and 2 caramel classic cookies in the cookie jar. If a cookie is chosen at random, what is the probability it will be a choc chip or a caramel classic? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

If you double Rob's age and subtract 1, the result is a prime number. Rob is less than 20 years old. If the sum of the digits in Rob's age is divisible by 5, how old is Rob?

32. [Problem Solving 2] *

In a mathematics competition with 15 questions, 6 marks are awarded for each correct response, 0 marks for each incorrect response and 3 marks are awarded for no response. Mark scored 51 points in this competition. What is the greatest number of incorrect responses he could have had?