sixth edition

MATHS MATE
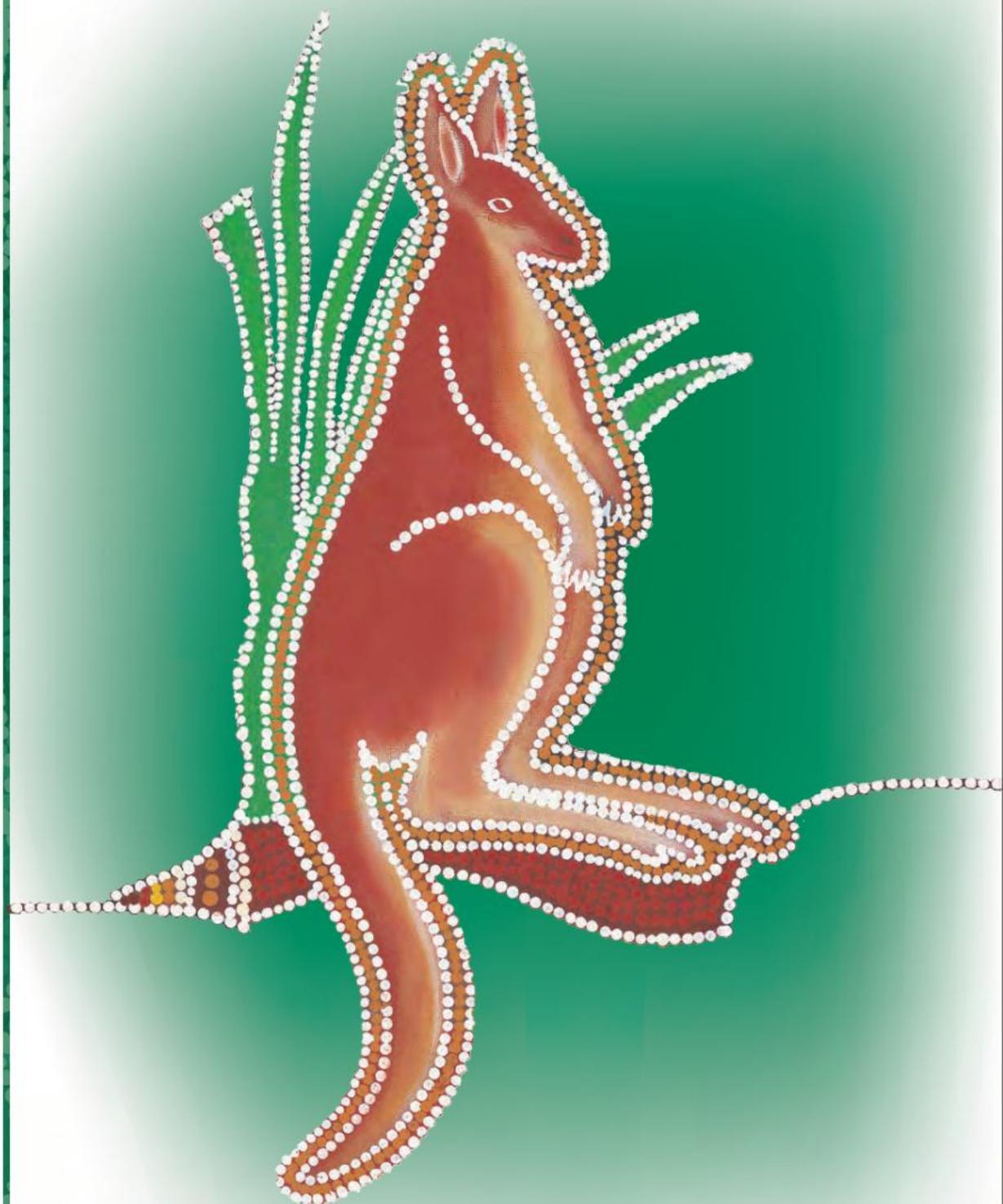
THE EDUCATIONAL ADVANTAGE

GREEN

J. B. Wright & I. Tutos

MATHS MATE
Student Workbook - 6th Edition

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 |

Maths Mate Green cover painting
Kangaroo - 2003
Acrylic on canvas 60×50 cm
by Australian artist Susan Betts - Kokata, Mirning and Wirangu.

'Kangaroo' 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

GREEN

Worksheet Results

Term 1

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [+ Whole Numbers to 10]	1	1	1	1	1.1	1	1	1	1	1.1
	2. [− Whole Numbers to 10]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
	5. [Large Number +,−]	5	5	5	5	5.4	5	5	5	5	5.3
	6. [Large Number ×,÷]	6	6	6	6	6.2	6	6	6	6	6.1,5
	7. [Decimal +,−]	7	7	7	7	7.1	7	7	7	7	7.2
	8. [Decimal ×,÷]	8	8	8	8	8.3	8	8	8	8	8.1
	9. [Fraction +,−]	9	9	9	9	9.1,2	9	9	9	9	9.3,4
	10. [Fraction ×,÷]	10	10	10	10	10.1	10	10	10	10	10.2
	11. [Percentages]	11	11	11	11	11.2	11	11	11	11	11.3
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.4	12	12	12	12	12.2
	13. [Integers]	13	13	13	13	13.1,2	13	13	13	13	13.3,4
	14. [Rates / Ratios]	14	14	14	14	14.1,2	14	14	14	14	14.3
	15. [Exponents / Square Roots]	15	15	15	15	15.2	15	15	15	15	15.3
	16. [Order of Operations]	16	16	16	16	16.2	16	16	16	16	16.4
	17. [Exploring Numbers]	17	17	17	17	17.2	17	17	17	17	17.2
	18. [Multiples / Factors / Primes]	18	18	18	18	18.2,3	18	18	18	18	18.4
	19. [Number Patterns]	19	19	19	19	19.1,2,3	19	19	19	19	19.5
ALGEBRA	20. [Expressions]	20	20	20	20	20.1	20	20	20	20	20.2
	21. [Substitution]	21	21	21	21	21.3	21	21	21	21	21.4
	22. [Equations]	22	22	22	22	22.1	22	22	22	22	22.2
	23. [Rules / Graphs]	23	23	23	23	23.2,3,5	23	23	23	23	23.4
MEASUREMENT	24. [Units of Measurement / Time]	24	24	24	24	24.2	24	24	24	24	24.3
	25. [Perimeter]	25	25	25	25	25.1,2	25	25	25	25	25.3
	26. [Area / Volume]	26	26	26	26	26.2,3	26	26	26	26	26.4
SPACE	27. [Shapes]	27	27	27	27	27.1,2	27	27	27	27	27.3,4
	28. [Location / Transformation]	28	28	28	28	28.2	28	28	28	28	28.3
STAT.	29. [Statistics]	29	29	29	29	29.3	29	29	29	29	29.4
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
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
	Total Correct										

1. [+ Whole Numbers to 10]

	4	6	11	8	7	13	10	2	9	15
+ 3										

2. [− Whole Numbers to 10]

	15	17	8	6	13	9	11	12	10	14
− 4										

3. [× Whole Numbers to 12]

	4	5	10	8	7	11	3	6	9	12
× 2										

4. [÷ Whole Numbers to 12]

	5	10	40	45	30	35	20	15	50	25
÷ 5										

5. [Large Number +,−] *

$2453 - 249 =$

6. [Large Number ×,÷] *

$3070 \div 10 =$

7. [Decimal +,−] *

$3.57 + 4.81 =$

8. [Decimal ×,÷] *

$0.35 \times 10 =$

9. [Fraction +,−]

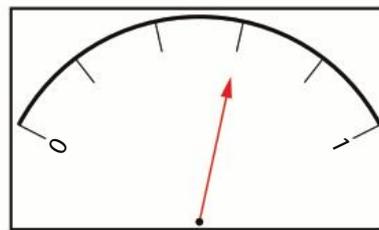$\dfrac{5}{7} + \dfrac{1}{7} =$

10. [Fraction ×,÷] *

$5 \times \dfrac{3}{7} =$

11. [Percentages] *

15% of the Australian population is aged 65+. What percentage of the population are under 65?

12. [Decimals / Fractions / Percents]

What decimal number is shown on this meter?

0   1

13. [Integers]

Arrange in ascending order:

$5, -2, 3, -6, 7$

14. [Rates / Ratios]

Simplify the ratio

$18 : 30$:

15. [Exponents / Square Roots]

$6^2 =$

16. [Order of Operations] *

$3 + 7 \times 3 =$

17. [Exploring Numbers]

What is the value of the underlined digit in the number 9$\underline{6}$4?

18. [Multiples / Factors / Primes] *

List the common multiples of 4 and 5 up to 60.

19. [Number Patterns]

Complete the pattern:

$2, 10, 18, 26,$ ___ , ___

20. [Expressions]

Simplify
$t + t + t$

21. [Substitution] *

If $y = 8$, find the value of
$3y + 7$

22. [Equations]

___ $+ 7 = 13$

23. [Rules / Graphs]

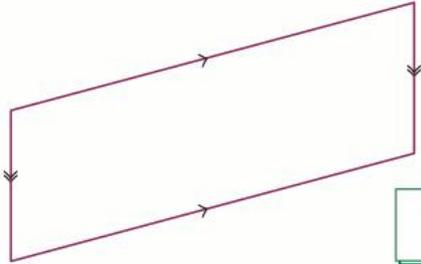What is the grid reference of the enemy hit on the battleship?

🔥 Enemy hit
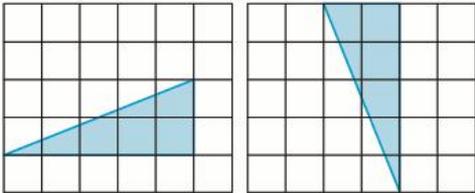Battleship

24. [Units of Measurement / Time] *

16 m = [ ] mm

25. [Perimeter] *

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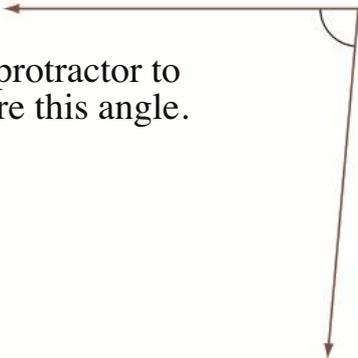

[ ] mm

26. [Area / Volume]

Do these triangles have the same area?

27. [Shapes]

Use a protractor to measure this angle.

28. [Location / Transformation]

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

29. [Statistics]

Which world region has the highest penetration of the internet?

| World Internet Usage 2019		
World Regions	% popn. penetration	% of world popn.
Africa	37.3	17.1
Asia	51.8	55.0
Europe	86.8	10.7
Latin America/Carribean	67.5	8.5
Middle East	67.2	3.3
North America	89.4	4.7
Oceania/Australia	68.4	0.5
WORLD TOTAL	56.8	100

30. [Probability]

Ita can choose an economy, business or first class flight to London, Paris or Rome. How many different outcomes are possible? [Complete the table.]

Outcomes (sample space)	
flight type	destination
economy	London
economy	
economy	

31. [Problem Solving 1] *

Some cubes have been removed from an array of $5 \times 3 \times 3$. How many cubes remain?
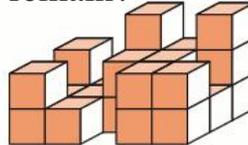
32. [Problem Solving 2]

A man looking at a photograph says, "Brothers and sisters I have none, but that man's father is my father's son." Who is in the photograph?

33. [Problem Solving 3] *

Three girls, Angela, Lakisha and Jessica, each have one brother and one pet. Lakisha has a bulldog. The horse belongs to the girl whose brother is Paul. If Angela's brother is Ken and the other brother is Stephen, who is Jessica's brother?

1. [+ Whole Numbers to 10]

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

2. [– Whole Numbers to 10]

	19	7	6	10	12	8	4	11	13	5
– 2										

3. [× Whole Numbers to 12]

	4	7	5	2	1	6	9	3	10	8
× 3										

4. [÷ Whole Numbers to 12]

	24	4	16	32	12	28	36	20	40	8
÷ 4										

MATHS MATE

GREEN

Term 1 - Sheet 2

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
Jones' Law - The man who can smile when things go wrong has thought of someone he can blame it on. Rossiter

5. [Large Number +,–] *

$7563 - 3482 =$

6. [Large Number ×,÷] *

$22\,000 \div 100 =$

7. [Decimal +,–] *

$25.9 + 30.7 =$

8. [Decimal ×,÷] *

$0.622 \times 100 =$

9. [Fraction +,–]
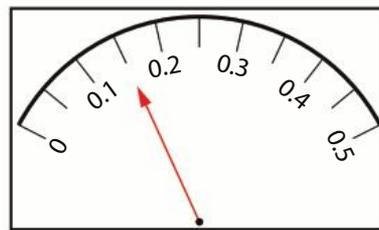
$\dfrac{11}{13} - \dfrac{4}{13} =$

10. [Fraction ×,÷] *

$\dfrac{3}{7} \times 14 =$

11. [Percentages] *

What percentage of the distance covered by an Olympic triathlon do athletes cycle if they swim for 3%, run for 20% and cycle the remainder?

12. [Decimals / Fractions / Percents]

What decimal number is shown on this meter?

13. [Integers]

Use < or > to make a true statement.

$3 \;\boxed{}\; -4$

14. [Rates / Ratios]

Simplify the ratio

$40 : 28 \quad \boxed{} : \boxed{}$

15. [Exponents / Square Roots]

$9^2 =$

16. [Order of Operations] *

$5 \times 9 - 6 =$

17. [Exploring Numbers]

In the number 3.241 which digit is in the hundredths place?

18. [Multiples / Factors / Primes] *

List the common multiples of 3 and 7 up to 70.

19. [Number Patterns]

Complete the pattern:

$43, 37, 31, 25, \underline{}, \underline{}$

20. [Expressions]

Simplify

$m + m - m + m$

21. [Substitution] *

If $r = 3$, find the value of $5r - 8$

22. [Equations]

$16 - \boxed{} = 9$

23. [Rules / Graphs]

Which town is located at the coordinates (6,2)?
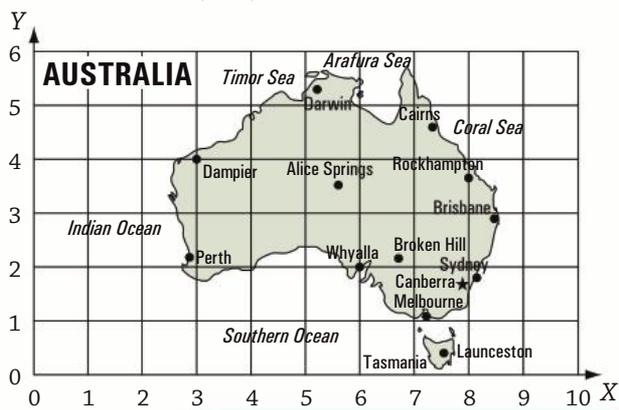
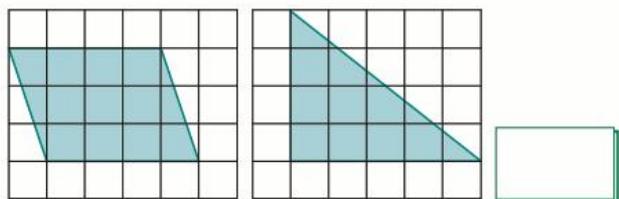**24.** [Units of Measurement / Time] *

200 mm = ☐ cm

25. [Perimeter] *

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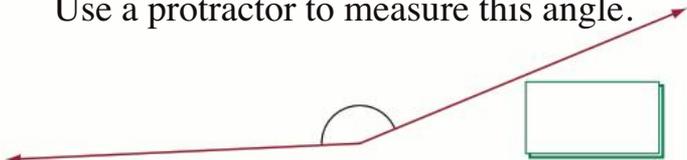

cm

26. [Area / Volume]

Do the parallelogram and the triangle have the same area?

27. [Shapes]

Use a protractor to measure this angle.

28. [Location / Transformation]

Draw the axes of symmetry of these shapes. Circle the shapes that have vertical symmetry.

29. [Statistics]

Which food type has four times as much protein as brown bread?

Food (50 g)	proteins (g)	fats (g)	carbohydrates (g)
brown bread	4	0.9	24.6
fresh cream	1	11.5	1.5
chocolate	16	15.5	28
boiled egg	6.2	5.7	0.3
strawberry	0.45	0.35	8.6
tuna	12	0.4	0

30. [Probability]

How many different outcomes are possible when choosing a vowel and choosing a card suit (spades, clubs, hearts or diamonds)? [Complete the table.]

Possible outcomes	vowel				
card suit	a	e	i	o	u
S	a,S	e,S			
C	a,C				
H	a,H				
D					

31. [Problem Solving 1] *

Caro painted this design in her art class. What is the ratio of the black portion of the design to the white portion?

32. [Problem Solving 2]

Complete the addition table.

+	3	8	
	5		6
		14	
12		17	
			13

33. [Problem Solving 3] *

To buy both the green (G) and blue (B) bikes would cost $1500. To buy the green and red (R) bikes would cost $750. To buy all three bikes would cost $2000. How much does each bike cost?

G = $ ☐   B = $ ☐   R = $ ☐

23 | 24 25 26 | 27 28 | 29 | 30 | 31 32 33 | ☐

1. [+ Whole Numbers to 10]

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

2. [− Whole Numbers to 10]

	6	13	10	7	12	8	5	9	11	14
− 3										

3. [× Whole Numbers to 12]

	5	8	11	6	9	12	10	7	3	4
× 5										

4. [÷ Whole Numbers to 12]

	16	14	24	8	12	22	6	10	20	18
÷ 2										

MATHS MATE

Term 1 - Sheet 3

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
Practise yourself...in little things; and thence proceed to greater.
Epictetus

5. [Large Number +,−] *

$8921 - 3506 =$

6. [Large Number ×,÷] *

$630\,000 \div 100 =$

7. [Decimal +,−] *

$3.68 + 4.51 =$

8. [Decimal ×,÷] *

$60.5 \times 1000 =$

9. [Fraction +,−] *

$\dfrac{4}{5} + \dfrac{3}{5} =$

10. [Fraction ×,÷] *

$\dfrac{2}{5} \times 5 =$

11. [Percentages] *

Eighteen-carat rose gold is 75% gold, 9% silver and the rest copper. What percentage is copper?

12. [Decimals / Fractions / Percents]

What decimal number is shown on this meter?
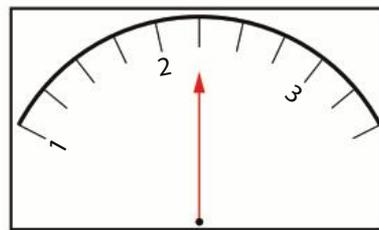
13. [Integers]

Use < or > to make a true statement.

-7 ___ -5

14. [Rates / Ratios]

Simplify the ratio

2 kg : 8 kg ___ : ___

15. [Exponents / Square Roots]

$0^2 =$

16. [Order of Operations] *

$56 \div 7 + 1 =$

17. [Exploring Numbers]

What is the value of the underlined digit in the number 0.5$\underline{5}$?

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 5 and 6?

19. [Number Patterns]

Complete the pattern:

$2, 2.3, 2.6, 2.9,$ ___ , ___

20. [Expressions]

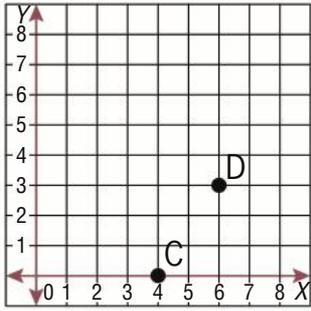Simplify
$hi + hi + hi + hi + hi$

21. [Substitution] *

If $t = 4$, find the value of
$\dfrac{t + 6}{5}$

22. [Equations]

$17 +$ ___ $= 26$

23. [Rules / Graphs]

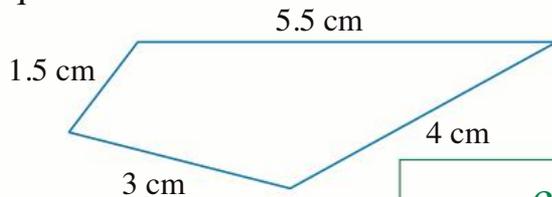What are the coordinates of the points C and D on this Cartesian plane?

C(,) D(,)

24. [Units of Measurement / Time] *

46 cm = _____ mm

25. [Perimeter] *

Calculate the perimeter of the quadrilateral.
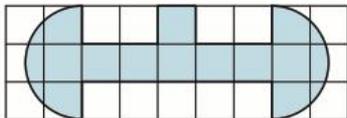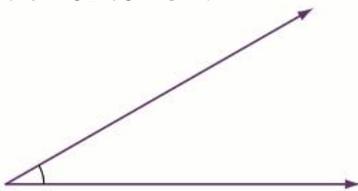

5.5 cm

1.5 cm

4 cm

3 cm

_____ cm

26. [Area / Volume] *

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

_____ sq. units

27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 30° or to 45°?

_____

28. [Location / Transformation]

Draw the axes of symmetry of these shapes. Circle the shapes that have horizontal symmetry.

29. [Statistics]

Of the animals that live for 15 years, which has the lowest heart rate?

Creature	Weight grams	Heart Rate beats/min	Longevity years
Human	90 000	60	70
Cat	2000	150	15
Dog	5000	90	15
Chicken	1500	275	15
Horse	1 200 000	44	40
Cow	800 000	65	22
Pig	150 000	70	25

_____

30. [Probability]

How many different outcomes are possible when rolling two dice?
[Complete the table.]
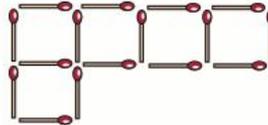
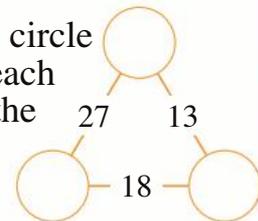| Possible outcomes		Die 1					
		1	2	3	4	5	6
Die 2	1	1,1	1,2				
	2	2,1					
	3	3,1					
	4						
	5						
	6						

_____

31. [Problem Solving 1]

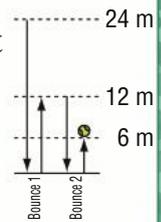By moving 3 matches to new positions, change the diagram so that there are 4 squares.

32. [Problem Solving 2] *

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

27   13

18

33. [Problem Solving 3] *

A ball is dropped from a height of 24 m. With each bounce, the ball reaches a height that is half the height of the previous bounce. How far has the ball travelled by the time it comes to rest? [Hint: The answer is a whole number.]

24 m

12 m

6 m

Bounce 1   Bounce 2

After 2 bounces

24 + 12 + 12 + 6 = 54 m

_____ m

MATHS MATE

GR·N GREEN

Term 1 - Sheet 4

Name: ....

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

Parent's Signature:

1. [+ Whole Numbers to 10]

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

2. [– Whole Numbers to 10]

	20	18	14	13	17	11	15	16	12	19
– 10										

3. [× Whole Numbers to 12]

	12	8	7	11	4	6	3	9	5	10
× 4										

4. [÷ Whole Numbers to 12]

	4	11	8	12	7	10	6	9	3	5
÷ 1										

5. [Large Number +,–] *

$7605 - 1485 =$

6. [Large Number ×,÷] *

$504\,000 \div 1000 =$

7. [Decimal +,–] *

$52.7 + 38.1 =$

8. [Decimal ×,÷] *

$3.49 \times 1000 =$

9. [Fraction +,–] *
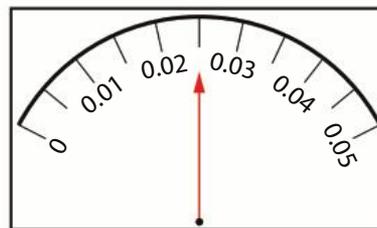
$\dfrac{16}{9} - \dfrac{2}{9} =$

10. [Fraction ×,÷] *

$2 \times \dfrac{7}{8} =$

11. [Percentages] *

Biofuel for a jet engine is made up of 50% jet A, 47.5% jatropha and the rest is algae. What percentage of the biofuel is algae?

12. [Decimals / Fractions / Percents]

What decimal number is shown on this meter?

13. [Integers]

Arrange in descending order:

$3, -3, -7, -9, 5$

14. [Rates / Ratios] *

Simplify the ratio

40 cm : 2 m   [:]

15. [Exponents / Square Roots]

$5^2 =$

16. [Order of Operations] *

$30 - 15 \div 3 =$

17. [Exploring Numbers]

What is the value of the underlined digit in the number 6.02$\underline{9}$?

18. [Multiples / Factors / Primes] *

What is the lowest common multiple (LCM) of 9 and 12?

19. [Number Patterns]

Complete the pattern:

$8, 6.5, 5, 3.5,$ ___ , ___

20. [Expressions]

Simplify

$ij + ij - ij - ij + ij$
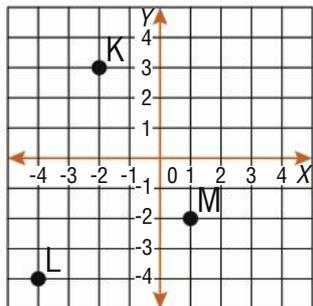
21. [Substitution] *

If $w = 2$, find the value of

$\dfrac{17 - w}{3}$

22. [Equations]

[ ] $- 14 = 20$

23. [Rules / Graphs]

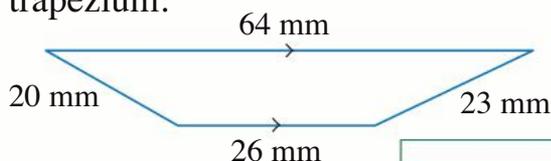What are the coordinates of the points K, L and M on this Cartesian plane?

K(,) L(,) M(,)

24. [Units of Measurement / Time] *

8.5 km = [ ] m

25. [Perimeter] *

Calculate the perimeter of the trapezium.

64 mm
20 mm
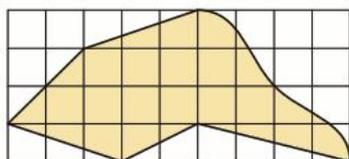23 mm
26 mm

[ ] mm

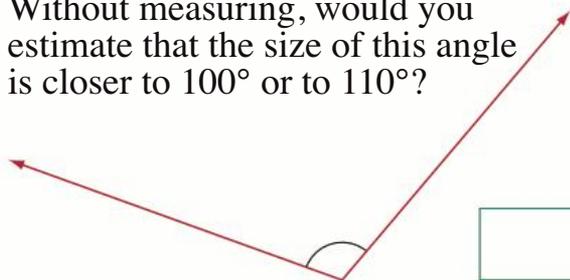**26.** [Area / Volume] *

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

[ ] sq. units

27. [Shapes]

Without measuring, would you estimate that the size of this angle is closer to 100° or to 110°?

[ ]

28. [Location / Transformation]

Draw the axes of symmetry of these shapes. Circle the shapes that are both horizontally and vertically symmetrical.

29. [Statistics] *

Approximately what percentage of nuclear plants under construction are being built in the USA?
A) 0.1%   B) 7%   C) 30%   D) 50%

Commercial Nuclear Power Plants to July 2019	Nuclear Electricity generated		Nuclear plants - Operable		Nuclear plants - Under Construction		Uranium required 2019
	Twh	%e	Number	GWe	Number	GWe	tonnes
World	2563	19.3	447	399	55	58	65014
USA	808	10.3	97	99	4	5	18996

GWh = Gigawatt hour
GWe = Gigawatts electric

[ ]

30. [Probability]

A coin is flipped 3 times. Given that order matters, (i.e. HTH ≠ THH) find the size of the sample space.
[Complete the table.]

Outcomes (sample space)		
1st flip	2nd flip	3rd flip
H	H	H
H		
H		
H		

H   H   H

[ ]

31. [Problem Solving 1] *

Rearrange the letters of each set of words to form three mathematical terms: {LOVE SUM}, {LARGE CENT}, {BURN ME}

[ ]

32. [Problem Solving 2] *

A donkey (D) and a mule (M) were carrying sacks of apples. The donkey groaned so the mule said to him: "Why are you complaining? If you gave me one sack, I would have twice as many as you; if I gave you one of my sacks, then we would have equal loads." How many sacks was each carrying? [According to legend, Euclid was the author of this puzzle.]

D = [ ]   M = [ ]

33. [Problem Solving 3] *

A whole number is multiplied by six. What must the answer be?
A) a square number
B) a prime number
C) a number divisible by 12
D) a multiple of 3

[ ]

1. [+ Whole Numbers to 10]

	24	11	16	9	15	22	7	18	20	13
+ 2										

2. [– Whole Numbers to 10]

	25	28	10	14	12	17	26	9	11	23
– 5										

3. [× Whole Numbers to 12]

	4	12	8	11	5	6	3	7	10	9
× 7										

4. [÷ Whole Numbers to 12]

	66	30	60	24	36	42	72	54	18	48
÷ 6										

MATHS MATE

GREEN

Term 1 - Sheet 5

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
Standing in the middle of the road is very dangerous: you get knocked down by the traffic from both sides.
Margaret Thatcher

5. [Large Number +,–] *

$6043 + 2875 =$

6. [Large Number ×,÷] *

$1826 \times 100 =$

7. [Decimal +,–] *

$4.87 - 0.95 =$

8. [Decimal ×,÷] *

$8 \times 0.9 =$

9. [Fraction +,–] *

$2\frac{3}{7} - 1\frac{4}{7} =$

10. [Fraction ×,÷] *

$\frac{1}{4}$ of 12 kg =

11. [Percentages]

65% of $100 = $

12. [Decimals / Fractions / Percents]

Simplify $\frac{6}{8}$

13. [Integers] *

Mauna Loa, a volcanic mountain in Hawaii, stands 4170 m above sea level and extends to 5 000 m below sea level. What is the total height of Mauna Loa?

m

14. [Rates / Ratios] *

At full speed, a downhill skier travels at 31 m/s. At this speed how far will the skier travel in 60 seconds?

m

15. [Exponents / Square Roots]

$10^1 =$

16. [Order of Operations] *

$(54 - 6) \div 6 =$

17. [Exploring Numbers]

In which number does the digit 2 have greater value?   A) 1042   B) 204

18. [Multiples / Factors / Primes] *

Is 7 a factor of 294?

19. [Number Patterns]

Complete the table:

Lamborghini

hwy distance (km)	4.5	9	13.5		
fuel usage (litres)	1	2	3	4	5

20. [Expressions]

Simplify $3x + x$

21. [Substitution] *

If $c = -6$, find the value of $c + 12$

22. [Equations]

$\boxed{} \times 8 = 40$

23. [Rules / Graphs]

Plot point A at coordinates (8,4) on this Cartesian plane.
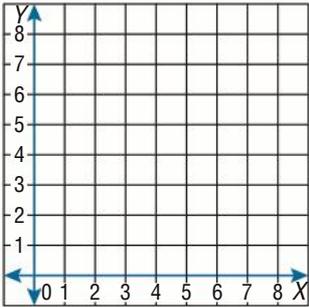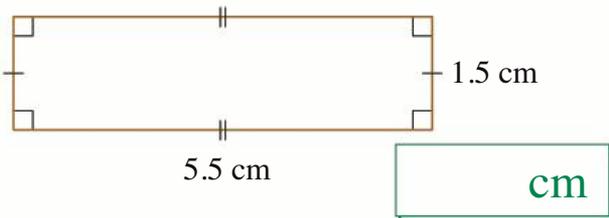
24. [Units of Measurement / Time] *

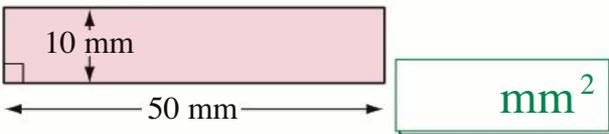$5 \text{ kg} = \boxed{}$ g

25. [Perimeter] *

Calculate the perimeter of the rectangle.

1.5 cm

5.5 cm

$\boxed{}$ cm

26. [Area / Volume] *

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

10 mm

50 mm

$\boxed{}$ mm^2

27. [Shapes]

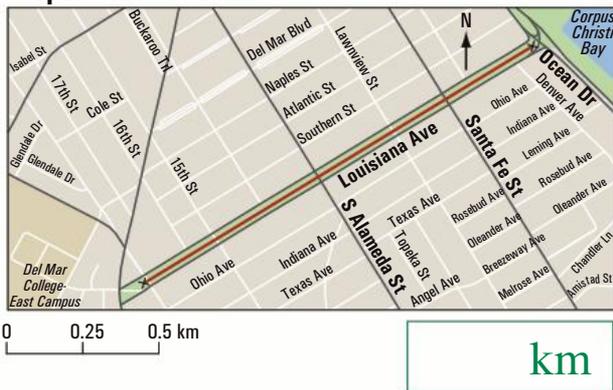Draw a trapezium marking the pair of parallel sides.

28. [Location / Transformation]

Using the scale, how long is the marked distance along Louisiana Avenue?

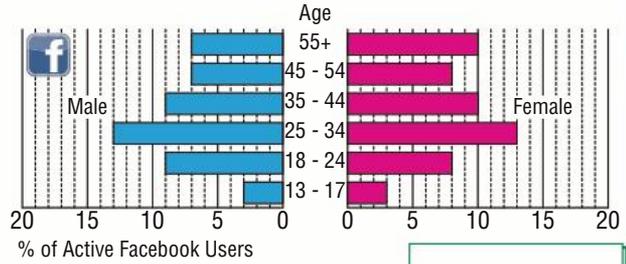[Answer to the nearest half kilometre.]

Corpus Christi · Texas

0   0.25   0.5 km

$\boxed{}$ km

29. [Statistics]

Which age group has a higher percentage of male users than female users of Facebook?

Age and gender distribution of Facebook users in Australia (Jan 2018)

Age
55+
45 - 54
35 - 44
25 - 34
18 - 24
13 - 17

Male   Female

20   15   10   5   0   0   5   10   15   20

% of Active Facebook Users

$\boxed{}$

30. [Probability]

How many different outcomes are possible if you can choose between a bus or a train, full fare or concession and you can travel in the morning (am) or the afternoon (pm)? [Complete the tree diagram.]

Start

type   bus

fare   f
(f, c)

time

$\boxed{}$
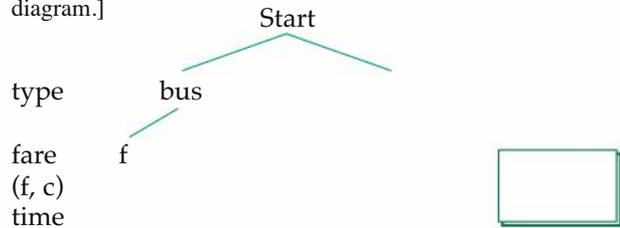
31. [Problem Solving 1]

On a standard die, opposite sides add to 7. Fill in the spaces so that, when folded, the net will form a standard die.

1

2   3
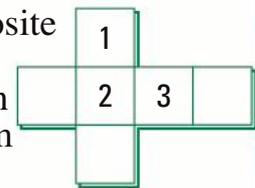
32. [Problem Solving 2] *

Cassandra had a pair of mice. The female gave birth to eight pups, four male and four female. In the next term, the five female mice each gave birth to eight pups, again four male and four female. If, in the next term, each female does the same and no mice die, how many mice, male and female, will Cassandra now have?

male = female =

33. [Problem Solving 3] *

Four darts are thrown at this dartboard. If all four darts hit the board, how many different point totals are possible?

[Dartboard regions are 1, 4, 7 & 10 points.]

1
4
7
10

$\boxed{}$

23 24 25 26 27 28 29 30 31 32 33

1. [+ Whole Numbers to 10]

	4	17	15	3	10	2	6	9	18	11
+ 7										

2. [– Whole Numbers to 10]

	25	13	28	22	10	6	19	11	24	27
– 1										

3. [× Whole Numbers to 12]

	7	10	5	9	12	6	4	3	8	11
× 6										

4. [÷ Whole Numbers to 12]

	56	88	48	64	96	40	72	80	24	32
÷ 8										

MATHS MATE

GREEN

Term 1 - Sheet 6

Name: ....

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

Parent's Signature:

5. [Large Number +,–] *

$5824 + 1503 = $

6. [Large Number ×,÷] *

$307 \times 1000 = $

7. [Decimal +,–] *

$27.4 - 8.3 = $

8. [Decimal ×,÷] *

$5.4 \times 6 = $

9. [Fraction +,–] *

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

10. [Fraction ×,÷] *

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

11. [Percentages] *

25% of $\$300 = \$$

12. [Decimals / Fractions / Percents]

Simplify $\frac{24}{30}$

13. [Integers] *

What is the time difference in hours between Moscow and New York?

	LA	Denver	Chicago	New York	Greenland	Sao Paulo	Azores	London	Paris	Cape Town	Moscow	Tehran	Karachi

–7 –6 –5 –4 –3 –2 –1 0 +1 +2 +3 +4 +5 h
GMT

14. [Rates / Ratios] *

A raindrop falls at 200 m per minute. How long will it take a raindrop to travel 6000 m?

min

15. [Exponents / Square Roots]

$10^2 = $

16. [Order of Operations] *

$(8 - 3) \times 7 = $

17. [Exploring Numbers]

In which number does the digit 5 have greater value?   A) 590   B) 7059

18. [Multiples / Factors / Primes] *

Is 230 divisible by 4?

19. [Number Patterns]

Complete the table:

Recycled and composted waste/person

No. of days	1	2	3	4	5	6
Weight (kg)	0.7	1.4	2.1	2.8		

20. [Expressions]

Simplify $5xy - xy$

21. [Substitution] *

If $k = -5$, find the value of $-7k$

22. [Equations]

$\boxed{} \times 6 = -60$

23. [Rules / Graphs]

Plot the following points on this Cartesian plane:
A at coordinates (2,3)
B at coordinates (−2,0)
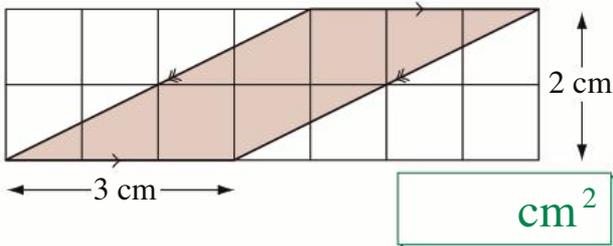C at coordinates (0,−3)

24. [Units of Measurement / Time] *

2000 g = [   ] kg

25. [Perimeter] *

Calculate the perimeter of an equilateral triangle with a side length of 30 mm.
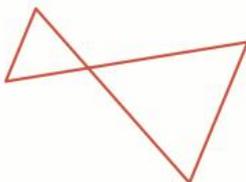
[   ] mm

26. [Area / Volume] *

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

2 cm

3 cm

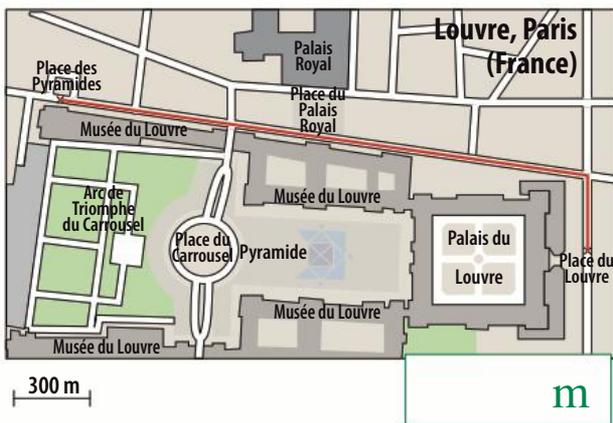[   ] cm^2

27. [Shapes]

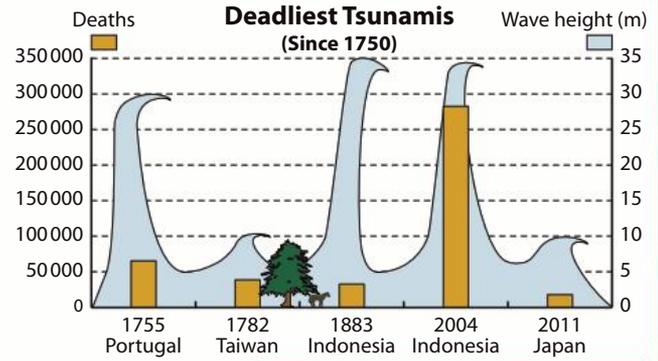Use arrows to show the pair of parallel lines in this diagram.

28. [Location / Transformation]

Using the scale, estimate to the nearest 100 metres the marked distance from *Place des Pyramides* to *Place du Louvre*.

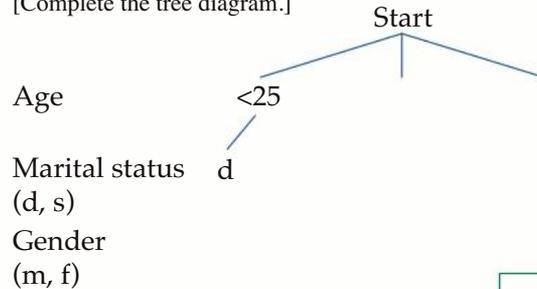Louvre, Paris (France)

Palais Royal
Place des Pyramides
Place du Palais Royal
Musée du Louvre
Arc de Triomphe du Carrousel
Place du Carrousel
Pyramide
Musée du Louvre
Palais du Louvre
Place du Louvre
Musée du Louvre
Musée du Louvre

300 m

[   ] m

29. [Statistics]

For which tsunami is the ratio **deaths : wave height** the greatest?

Deaths   **Deadliest Tsunamis (Since 1750)**   Wave height (m)

| 1755 Portugal | 1782 Taiwan | 1883 Indonesia | 2004 Indonesia | 2011 Japan |

[   ]

30. [Probability]

How many different insurance options does a company need to consider when offering rates according to age (<25, 25-50, >50), marital status (de facto, single) and gender (male, female)?
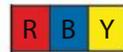[Complete the tree diagram.]

Start

Age   <25

Marital status   d
(d, s)

Gender
(m, f)

[   ]

31. [Problem Solving 1] *

If you divide a number by 6, add 2, multiply by 3 and subtract 5, the result is 10. What is the number?

[   ]

32. [Problem Solving 2] *

How many different flags with 3 stripes are possible, using the colours red (R), blue (B) and yellow (Y)? Each colour may be used more than once in each flag. [Consider YYY as 3 stripes.]

R B Y

[   ]

33. [Problem Solving 3] *

A number that is equal to the sum of all its factors, other than itself, is a *perfect number*.
For example: 6 = 1 + 2 + 3
Therefore 6 is a perfect number. Which of the numbers 20, 24, 28 and 32 is also a perfect number?

[   ]

23 24 25 26 27 28 29 30 31 32 33

1. [+ Whole Numbers to 10]

	25	11	9	22	26	19	24	17	10	3
+ 4										

2. [– Whole Numbers to 10]

	27	12	13	18	24	11	15	22	29	10
– 6										

3. [× Whole Numbers to 12]

	9	6	5	11	4	8	10	1	7	3
× 11										

4. [÷ Whole Numbers to 12]

	14	42	7	63	35	70	28	49	21	56
÷ 7										

5. [Large Number +,–] *

$5273 + 1490 =$

6. [Large Number ×,÷] *

$349 \times 600 =$

7. [Decimal +,–] *

$8.62 - 3.59 =$

8. [Decimal ×,÷] *

$3.61 \times 3 =$

9. [Fraction +,–] *

$3\dfrac{5}{12} + 2\dfrac{1}{12} =$

10. [Fraction ×,÷] *

$\dfrac{2}{5}$ of 30 m =

11. [Percentages] *

5% of $5.00 =

¢

12. [Decimals / Fractions / Percents]

Simplify $\dfrac{12}{16}$

13. [Integers] *

What is the difference between the highest and lowest temperatures recorded in Edinburgh?

°C
-40 -30 -20 -10 0 10 20 30 40

lowest   highest

°C

14. [Rates / Ratios] *

On average, women walk at a speed of 80 m/min. At this rate how far would a woman walk in an hour?

m

15. [Exponents / Square Roots]

$10^5 =$

16. [Order of Operations] *

$36 \div (9 - 3) =$

17. [Exploring Numbers]

In which number does the digit 7 have greater value? A) 9.751   B) 7.09

18. [Multiples / Factors / Primes]

List all the factors of 24 in ascending order.

19. [Number Patterns]

Complete the table:

Waste generation/person

No. of days	1	2	3	4	5	6
Weight (kg)	2.1	4.2	6.3	8.4		

20. [Expressions]

Simplify
$5q - 4q + q$

21. [Substitution] *

If $q = -18$, find the value of
$\dfrac{q}{3}$

22. [Equations]

$-5 \times \boxed{} = 45$

23. [Rules / Graphs]

Draw crosses at the following points:
(0,−6), (1,−4), (2,−2), (3,0), (4,2), (5,4)
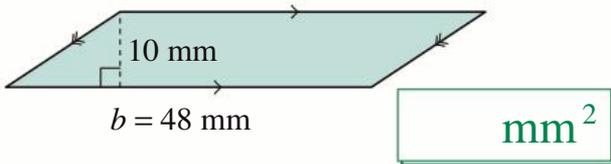

24. [Units of Measurement / Time] *

$4\,t = $ ⬚ kg

25. [Perimeter] *

Calculate the perimeter of the parallelogram.

13 mm
27 mm

⬚ mm

26. [Area / Volume] *

Using $A = bh$ find the area of the parallelogram.

10 mm
$b = 48$ mm

⬚ mm^2

27. [Shapes]

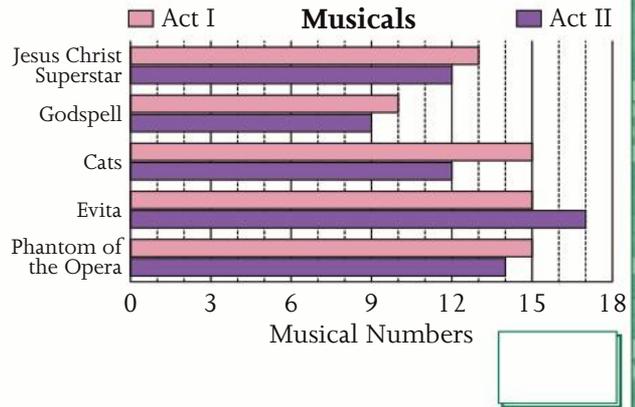Draw an isosceles acute-angled triangle marking the congruent sides and congruent angles.

28. [Location / Transformation]

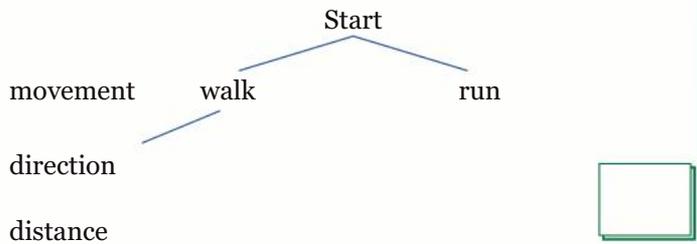A plane flies from Manaus to Salvador. Using the scale, estimate to the nearest 1000 km the distance travelled.

⬚ km

29. [Statistics]

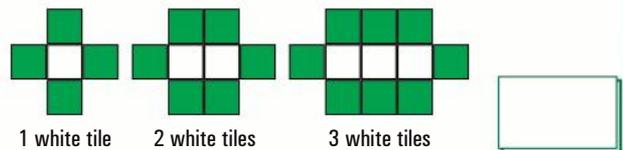Of the musicals shown, how many have 15 musical numbers in Act I?

⬚

30. [Probability]

During an orienteering activity, Lara must decide whether to walk or run in one direction (N, S, E or W) for 3 km or 5 km. How many different options does Lara have? [Complete the tree diagram.]

Start

movement   walk   run

direction

distance

⬚

31. [Problem Solving 1] *

How many green tiles are needed to go around 10 white tiles using the pattern shown?

1 white tile   2 white tiles   3 white tiles

⬚

32. [Problem Solving 2] *

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

1			10
	4		6
	5	14	
8	9		15

33. [Problem Solving 3] *

A clay target team has a surprising number of one-legged members. All these members wear a boot. Of the remainder of the twenty-two members, only half choose to wear boots, the others go barefoot. How many boots are worn by the team?

⬚

1. [+ Whole Numbers to 10]

	23	19	8	20	5	12	17	16	24	11
+ 6										

2. [– Whole Numbers to 10]

	11	23	12	16	25	24	10	29	17	8
– 4										

3. [× Whole Numbers to 12]

	7	3	1	10	9	4	8	2	5	6
× 1										

4. [÷ Whole Numbers to 12]

	12	22	18	8	10	14	24	16	20	6
÷ 2										

5. [Large Number +,–] *

$4362 + 2081 = $

6. [Large Number ×,÷] *

$50 \times 1500 = $

7. [Decimal +,–] *

$9.64 - 5.37 = $

8. [Decimal ×,÷] *

$8 \times 4.072 = $

9. [Fraction +,–] *

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

10. [Fraction ×,÷] *

$\frac{3}{10}$ of 100 L =

11. [Percentages] *

30% of $6.00 =

$

12. [Decimals / Fractions / Percents]

Simplify $\frac{30}{45}$

13. [Integers] *

The lowest point in China is Turpan Pendi at -154 m and the highest point is Mt Everest at 8850 m. What is the height difference?

m

14. [Rates / Ratios] *

A space shuttle travelled 720 000 km in 24 hours in orbit. What was its average speed?

km/h

15. [Exponents / Square Roots]

$10^6 = $

16. [Order of Operations] *

$9 \times (11 - 7) = $

17. [Exploring Numbers]

In which number does the digit 6 have greater value?   A) 0.687   B) 1.467

18. [Multiples / Factors / Primes]

List all the factors of 54 in ascending order.

19. [Number Patterns]

Complete the table:

Polygons

sides	3	4	5	6	7
sum of interior angles	180		540	720	

20. [Expressions]

Simplify $2s - s + 6s$

21. [Substitution] *

If $r = -4$, find the value of $3r - 9$

22. [Equations]

$9 \times \boxed{} = -36$

23. [Rules / Graphs]

Draw crosses at the following points:
(−6,3), (−4,1), (−2,−1), (0,−3), (2,−5)

24. [Units of Measurement / Time] *
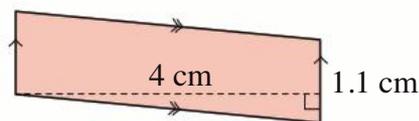
7.2 kg = ☐ g

25. [Perimeter] *
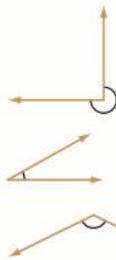
Calculate the perimeter of the trapezium.

25 mm

24 mm

31 mm

☐ mm

26. [Area / Volume] *

Find the area of the parallelogram.

4 cm

1.1 cm

☐ cm²

27. [Shapes]

Match each angle to its description:
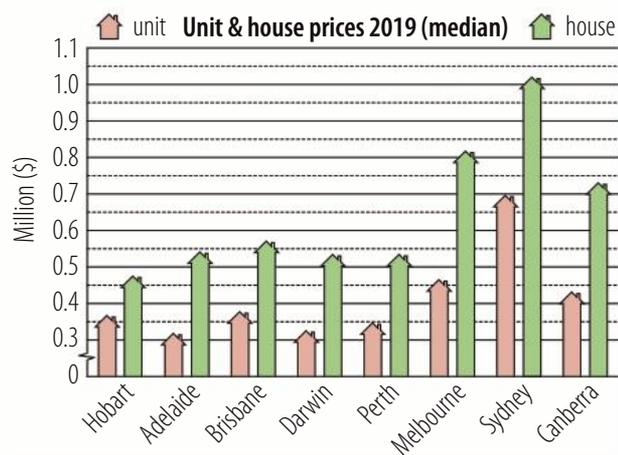
obtuse

reflex

acute

28. [Location / Transformation]

Using the scale, estimate to the nearest 100 km the marked distance from Vientiane (Laos) to Phnom Penh (Cambodia).
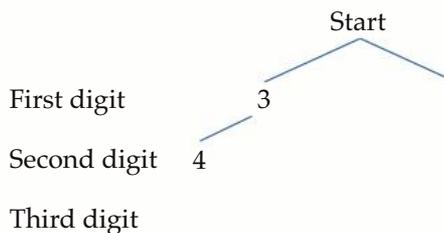
CHINA

VIETNAM

Hanoi Gulf of Tonkin

LAOS

Vientiane

South China Sea

THAILAND

CAMBODIA
Phnom Penh

Ho Chi Minh City

Gulf of Thailand

0   1000 km

☐ km

29. [Statistics]

Which city has the greatest difference between unit and house prices?

unit **Unit & house prices 2019 (median)** house

Million ($)

Hobart Adelaide Brisbane Darwin Perth Melbourne Sydney Canberra

☐

30. [Probability]

How many different 3-digit numbers less than 500 can be made using the digits 3, 4, 5 and 6 if the digits can be used only once? [Complete the tree diagram.]

Start

First digit   3

Second digit   4

Third digit

☐

31. [Problem Solving 1] *

Igor wants to fit his photo, 3 cm high and 2 cm wide, in the newspaper. The available space is 9 cm high. If the photo is enlarged proportionally to fit in the newspaper, what width will the photo become?

☐ cm

32. [Problem Solving 2] *

Find the value of the product:

$$\frac{3}{5}\times\frac{5}{7}\times\frac{7}{9}\times\frac{9}{11}\times\frac{11}{13}\times\frac{13}{15}=$$ ☐

33. [Problem Solving 3] *

The sum of the digits of 2014 is 7. How many whole numbers between 100 and 999 have 9 as the sum of their digits?

☐

23 24 25 26 27 28 29 30 31 32 33

MATHS MATE

GREEN

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. [+ Whole Numbers to 10]	1	1	1	1	1.1	1	1	1	1	1.1
	2. [– Whole Numbers to 10]	2	2	2	2	2.1	2	2	2	2	2.1
	3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
	5. [Large Number +,–]	5	5	5	5	5.4	5	5	5	5	5.3
	6. [Large Number ×,÷]	6	6	6	6	6.4	6	6	6	6	6.3
	7. [Decimal +,–]	7	7	7	7	7.1	7	7	7	7	7.2
	8. [Decimal ×,÷]	8	8	8	8	8.2,4	8	8	8	8	8.5
	9. [Fraction +,–]	9	9	9	9	9.5	9	9	9	9	9.1,2
	10. [Fraction ×,÷]	10	10	10	10	10.3	10	10	10	10	10.4
	11. [Percentages]	11	11	11	11	11.4	11	11	11	11	11.5
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.5	12	12	12	12	12.6,7
	13. [Integers]	13	13	13	13	13.5,6	13	13	13	13	13.6
	14. [Rates / Ratios]	14	14	14	14	14.3	14	14	14	14	14.4
	15. [Exponents / Square Roots]	15	15	15	15	15.4	15	15	15	15	15.2
	16. [Order of Operations]	16	16	16	16	16.4	16	16	16	16	16.4
	17. [Exploring Numbers]	17	17	17	17	17.3,4	17	17	17	17	17.5
	18. [Multiples / Factors / Primes]	18	18	18	18	18.5,6	18	18	18	18	18.7
	19. [Number Patterns]	19	19	19	19	19.6,7	19	19	19	19	19.8
ALGEBRA	20. [Expressions]	20	20	20	20	20.3	20	20	20	20	20.4
	21. [Substitution]	21	21	21	21	21.5,6	21	21	21	21	21.7
	22. [Equations]	22	22	22	22	22.3	22	22	22	22	22.4
	23. [Rules / Graphs]	23	23	23	23	23.5	23	23	23	23	23.6
MEASUREMENT	24. [Units of Measurement / Time]	24	24	24	24	24.2	24	24	24	24	24.4
	25. [Perimeter]	25	25	25	25	25.4	25	25	25	25	25.2
	26. [Area / Volume]	26	26	26	26	26.5	26	26	26	26	26.6,7
SPACE	27. [Shapes]	27	27	27	27	27.7	27	27	27	27	27.8
	28. [Location / Transformation]	28	28	28	28	28.4	28	28	28	28	28.5
STAT.	29. [Statistics]	29	29	29	29	29.5	29	29	29	29	29.6,7
PROB.	30. [Probability]	30	30	30	30	30.5	30	30	30	30	30.5
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
	Total Correct										

1. [+ Whole Numbers to 10]

	8	13	1	10	12	5	14	17	9	16
+ 3										

2. [− Whole Numbers to 10]

	14	19	13	15	7	12	20	16	8	11
− 7										

3. [× Whole Numbers to 12]

	11	6	3	10	8	7	4	9	12	5
× 10										

4. [÷ Whole Numbers to 12]

	110	44	66	33	99	55	22	77	121	88
÷ 11										

5. [Large Number +,−] *

$2544 - 1347 =$

6. [Large Number ×,÷] *

$3150 \div 5 =$

7. [Decimal +,−] *

$36.8 + 54.8 =$

8. [Decimal ×,÷] *

$0.54 \div 6 =$

9. [Fraction +,−] *

$2 - \dfrac{7}{9} =$

10. [Fraction ×,÷] *

$5 \div \dfrac{1}{3} =$

11. [Percentages] *

75% of $480 =$

12. [Decimals / Fractions / Percents]

Complete the equivalent fractions:

$$\frac{2}{5} = \frac{\square}{45}$$

13. [Integers]

From the food court Lill rides the elevator up 3 levels and then down 6. At which level is Lill now?

5 ladies
4 homewares
3 books/toys
2 men's & children's
1 cosmetics/shoes
0 food court
−1 carpark (A)
−2 carpark (B)
−3 carpark (C)

14. [Rates / Ratios] *

The Shortfin Mako shark can swim 50 km per hour. At this rate how far can it swim in half an hour?

km

15. [Exponents / Square Roots]

$\sqrt{100} =$

16. [Order of Operations] *

$9 - 20 \div (2 + 3) =$

17. [Exploring Numbers]

Express in numerals: two thousand, one hundred and fifteen

18. [Multiples / Factors / Primes] *

List all the common factors of 28 and 42.

19. [Number Patterns]

Complete the pattern:

$\dfrac{3}{16}, \dfrac{3}{4}, 3, 12,$ ___ , ___

20. [Expressions]

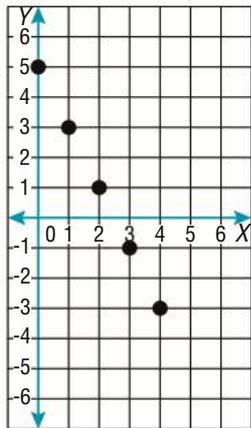Write as an expression: The sum of a and c

21. [Substitution] *

If $e = -13$ and $f = 8$, find the value of $e + f$

22. [Equations] *

$\dfrac{2}{3}$ of $\square = 18$

23. [Rules / Graphs]

These dots, if joined, would form a line. Another point on this line has a *y*-coordinate of −5. What is the *x*-coordinate of this point?
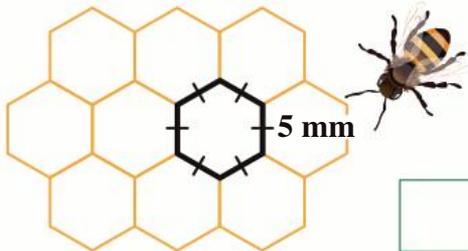
(,−5)

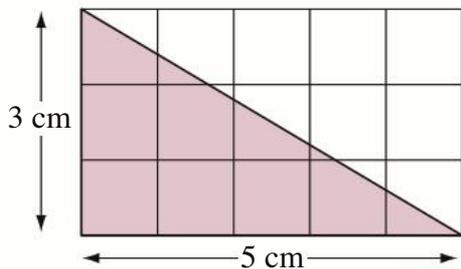**24.** [Units of Measurement / Time] *

210 m = _____ cm

25. [Perimeter] *

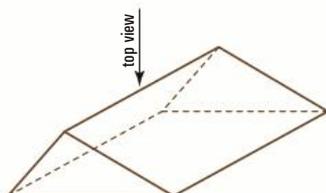What is the perimeter of one hexagonal section of honeycomb?

5 mm

_____ mm

26. [Area / Volume] *

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

3 cm

5 cm

_____ cm^2

27. [Shapes]

Sketch the top view of this solid.

top view

28. [Location / Transformation]

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

29. [Statistics]

For which level in the Australian Public Service do females make up 70% of the workers?

Australian Public Service (APS) Employees

Percentage (%)

Entry Level 1, 2, 3, 4, 5, 6, Executive Level 1, 2, Senior Executive Level 1, 2, 3

Position

☐ Male
☐ Female

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 will be a Queen? [Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

How many numbers between 1 and 400 are divisible by 7?

32. [Problem Solving 2] *

Find the last digit of 6^{30}.

33. [Problem Solving 3] *

Pink rose plants are on sale for $3 each and white ones for $5 each. A gardener decides to buy 13 in total, choosing more white plants than pink. If the gardener spent $55, how many white plants did he buy?

1. [+ Whole Numbers to 10]

	2	16	20	9	15	14	11	8	7	13
+ 5										

2. [− Whole Numbers to 10]

	4	22	10	15	18	3	21	7	16	19
− 3										

3. [× Whole Numbers to 12]

	5	12	6	11	7	8	3	9	4	10
× 2										

4. [÷ Whole Numbers to 12]

	70	40	30	60	90	120	80	50	110	100
÷ 10										

5. [Large Number +,−] *

$3425 - 863 =$

6. [Large Number ×,÷] *

$3054 \div 6 =$

7. [Decimal +,−] *

$2.78 + 3.97 =$

8. [Decimal ×,÷] *

$1.89 \div 7 =$

9. [Fraction +,−] *

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

10. [Fraction ×,÷] *

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

11. [Percentages] *

35% of $80 =$

12. [Decimals / Fractions / Percents]

Complete the equivalent fractions:

$\frac{20}{48} = \frac{5}{}$

13. [Integers]

Starting from the platform, Clem rides 5 m down the mine shaft, and then continues 2 m further down. Where is Clem now?

metres
3 platform
2
1
0 ground level
−1
−2
−3
−4
−5

m

14. [Rates / Ratios] *

A tortoise, or land turtle, might move 150 m in half an hour. What is this speed in metres per minute?

m/min

15. [Exponents / Square Roots]

$\sqrt{16} =$

16. [Order of Operations] *

$38 \div (4 + 15) + 9 =$

17. [Exploring Numbers]

Express in numerals: twenty-four thousand and fifty

18. [Multiples / Factors / Primes] *

List all the common factors of 32 and 80.

19. [Number Patterns]

Complete the pattern:

$0.2, 0.6, 1.8, 5.4, \underline{}, \underline{}$

20. [Expressions]

Write as an expression: A number that is equal to 80 less than x

21. [Substitution] *

If $t = 15$ and $u = 9$, find the value of $t - u$

22. [Equations] *

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

23. [Rules / Graphs]

What are the coordinates of point V that will make STUV a rectangle?

24. [Units of Measurement / Time] *
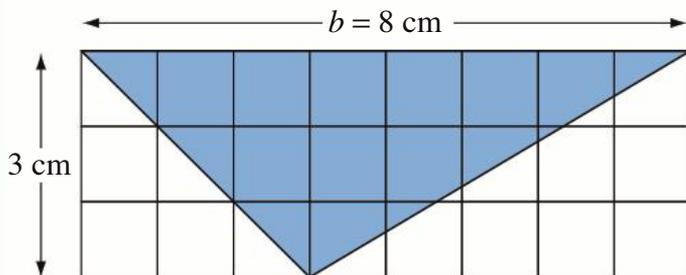
$5.4 \text{ m} = \boxed{}$ mm

25. [Perimeter] *

What is the perimeter of the Australian 50 cent coin? [Hint: 12 sides]

8 mm

mm

26. [Area / Volume] *

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

$b = 8$ cm

3 cm

cm^2

27. [Shapes]

Sketch the front view of this solid.

front view

28. [Location / Transformation]

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

29. [Statistics]

Which capital city has 20% of their households housing a single resident?

Selected Capital City Households

	Single parent/children
	Couple/children
	Couple
	Single
	Group house

Hobart   Melbourne   Canberra   Sydney   Brisbane

30. [Probability] *

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

M I L N I R S
L I O A E

31. [Problem Solving 1] *

The sum of five consecutive, whole numbers is 40. What are the five numbers?

32. [Problem Solving 2] *

Fifteen toothpicks are used to make three hexagons. Find the minimum number of extra toothpicks required to extend the pattern to seven hexagons.

33. [Problem Solving 3] *

Madeline invests $3000. At the end of each year she receives 10% interest on the total balance for that year. What is her balance at the end of the third year?

$

Name: ....

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

Parent's Signature:

1. [+ Whole Numbers to 10]

	1	5	8	12	16	9	13	17	10	14
+ 2										

2. [– Whole Numbers to 10]

	16	9	13	25	17	12	10	21	14	8
– 6										

3. [× Whole Numbers to 12]

	6	12	7	11	3	8	10	5	9	4
× 5										

4. [÷ Whole Numbers to 12]

	21	9	15	30	36	18	33	27	24	6
÷ 3										

5. [Large Number +,–] *

$4901 - 512 =$

6. [Large Number ×,÷] *

$1736 \div 7 =$

7. [Decimal +,–] *

$9.38 + 4.71 =$

8. [Decimal ×,÷] *

$265.9 \div 100 =$

9. [Fraction +,–] *

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

10. [Fraction ×,÷] *

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

11. [Percentages] *

30% of 15 =

12. [Decimals / Fractions / Percents]

Complete the equivalent fractions:

$$\frac{2}{\square} = \frac{6}{9} = \frac{\square}{54}$$
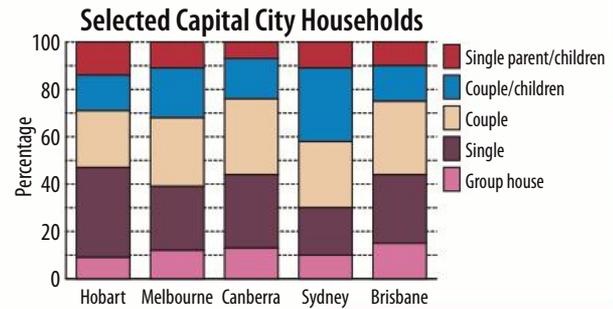
13. [Integers] *

You bought $2000 worth of shares. After the first year you lost $650 but after the second year you gained $1250. What is the current value of your shares?

$

14. [Rates / Ratios] *

Greyhounds are the fastest dogs, reaching speeds of 70 km/h. At this rate how long does it take a greyhound to run 14 km?

min

15. [Exponents / Square Roots]

$\sqrt{144} =$

16. [Order of Operations] *

$11 - (14 - 8) \div 2 =$

17. [Exploring Numbers]

Write the number 20 300 in words.

18. [Multiples / Factors / Primes] *

What is the highest common factor (HCF) of 40 and 72?

19. [Number Patterns]

Complete the pattern:

$256, 64, 16, 4,$ ____ , ____

20. [Expressions]

Write as an expression:
A number that is equal to forty times m

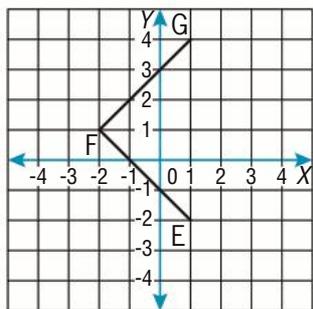**21.** [Substitution] *

If $v = 18$ and $w = 2$, find the value of

$\frac{v}{w}$

22. [Equations] *

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

23. [Rules / Graphs]

What are the coordinates of point H that will make EFGH a square?
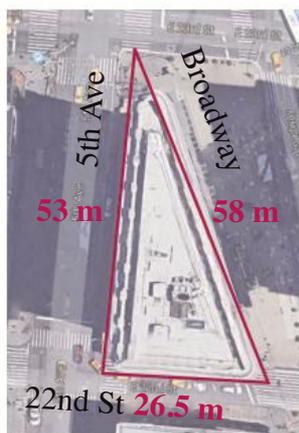
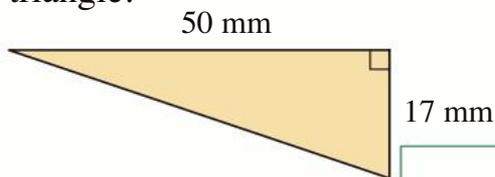**24.** [Units of Measurement / Time] *

700 m = ☐ km

25. [Perimeter] *

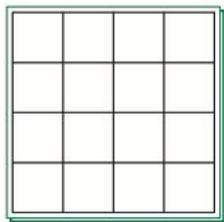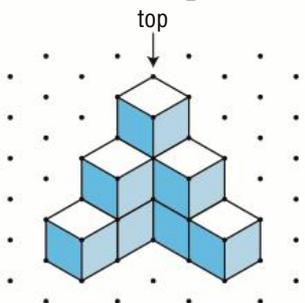What is the perimeter on the outside of the Flatiron Building in New York?

5th Ave   Broadway

53 m   58 m

22nd St   26.5 m

☐ m

26. [Area / Volume] *

Find the area of the right-angled triangle.

50 mm

17 mm

☐ mm^2

27. [Shapes]

Draw the top view of this solid.
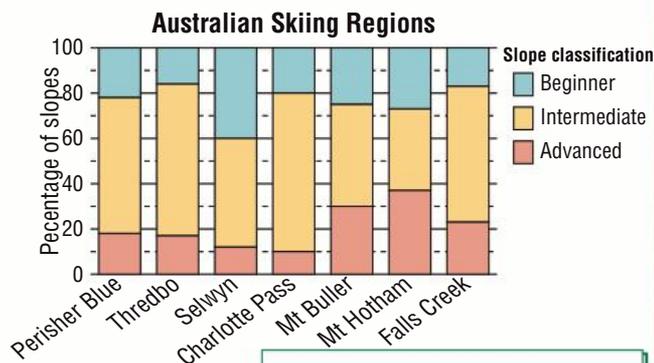
top

28. [Location / Transformation]

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

☐

29. [Statistics]

Which skiing region has the greatest percentage of their slopes classified as intermediate?

Australian Skiing Regions

Slope classification
Beginner
Intermediate
Advanced

☐

30. [Probability] *

When the spinner is spun once, what is the probability of spinning a consonant?
[Give your answer as a fraction in simplest form.]

☐

31. [Problem Solving 1] *

If you have 5¢, 20¢ and 50¢ coins, in how many ways can you make up exactly $1?

☐

32. [Problem Solving 2] *

A family of kittens likes to climb our fruit trees. If one kitten climbs on each tree, there is one kitten without a tree. If two kittens climb on each tree, there is one unoccupied tree. How many kittens and how many trees are there?
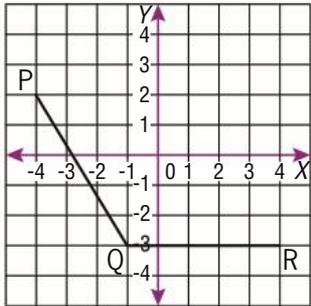
kittens = ☐   trees = ☐

33. [Problem Solving 3] *

A bowl of M&Ms is on a table. Sam takes away half of the M&Ms. Nick then takes one third of what is left. Eight or half of the remainder are red M&Ms. How many M&Ms were there originally?

☐

1. [+ Whole Numbers to 10]

	10	6	5	8	12	9	11	7	3	14
+ 8										

2. [– Whole Numbers to 10]

	14	11	17	16	23	10	12	29	18	15
– 10										

3. [× Whole Numbers to 12]

	4	6	12	10	7	3	11	8	9	5
× 7										

4. [÷ Whole Numbers to 12]

	54	45	90	108	72	27	63	99	36	81
÷ 9										

5. [Large Number +,–] *

$5173 - 1628 =$

6. [Large Number ×,÷] *

$7344 \div 9 =$

7. [Decimal +,–] *

$5.9 + 76.9 =$

8. [Decimal ×,÷] *

$548.7 \div 1000 =$

9. [Fraction +,–] *

$4 - 2\dfrac{7}{11} =$

10. [Fraction ×,÷] *

$6 \div \dfrac{3}{5} =$

11. [Percentages] *

8% of 50 =

12. [Decimals / Fractions / Percents]

Complete the equivalent fractions:

$\dfrac{5}{6} = \dfrac{\Box}{30} = \dfrac{75}{\Box}$

13. [Integers] *

From a cruising depth of 75 m below sea level (BSL) the Nautilus descended to 105 m BSL and then rose to 80 m BSL. What is the total vertical distance the Nautilus travelled? ___ m

14. [Rates / Ratios] *

A red kangaroo jumps along at 40 km/h. At this rate how long would it take to jump 2 km? ___ min

15. [Exponents / Square Roots]

$\sqrt{121} =$

16. [Order of Operations] *

$90 \div (9 + 6) \times 3 =$

17. [Exploring Numbers]

Write the number 605 000 in words.

18. [Multiples / Factors / Primes] *

What is the highest common factor (HCF) of 18 and 45?

19. [Number Patterns]

Complete the pattern:
97.2, 32.4, 10.8, 3.6,
___ , ___

20. [Expressions]

Write as an expression:
A number that is equal to 36 more than y

21. [Substitution] *

If $a = 0$ and $b = 8$, find the value of $7ab$

22. [Equations] *

$\dfrac{4}{7} \times \Box = 16$

23. [Rules / Graphs]

What are the coordinates of point S that will make PQRS a parallelogram?
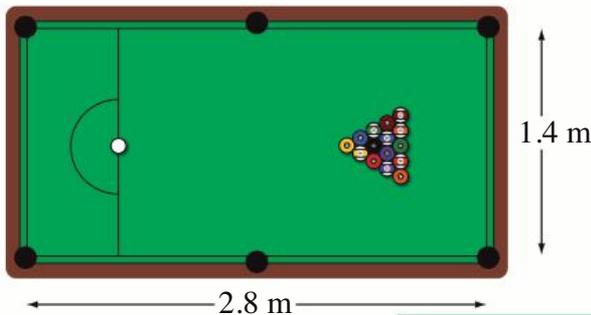
24. [Units of Measurement / Time] *

350 cm = ☐ m
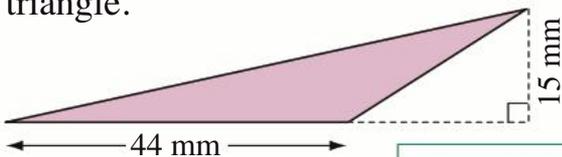
25. [Perimeter] *

What is the perimeter of the playing surface of a rectangular billiard table?
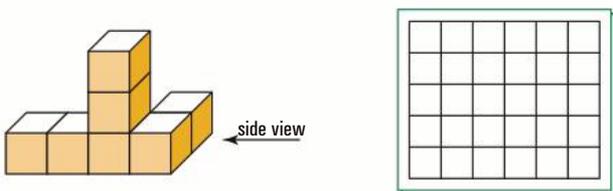
1.4 m

2.8 m

☐ m

26. [Area / Volume] *

Find the area of the obtuse-angled triangle.

15 mm

44 mm

☐ mm^2

27. [Shapes]

Draw the side view of this solid.

side view
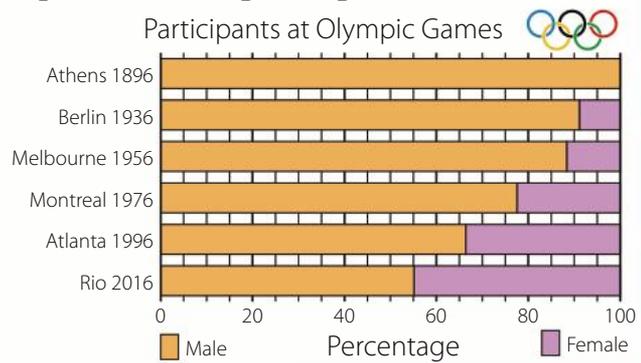
28. [Location / Transformation]

This compass shows that you are facing northeast. How many degrees clockwise must you turn to face northwest?

29. [Statistics]

In which of the Olympic games shown did females make up closest to one quarter of the participants?

Participants at Olympic Games

	0	20	40	60	80	100
Athens 1896						
Berlin 1936						
Melbourne 1956						
Montreal 1976						
Atlanta 1996						
Rio 2016						

■ Male   Percentage   ■ Female
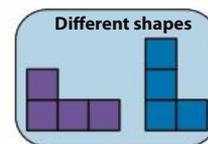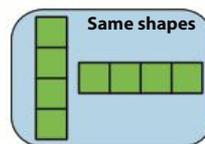
30. [Probability] *

When the spinner is spun once, what is the probability of spinning a prime number? [Give your answer as a fraction in simplest form.]

1 1
55   2
34   3
21   5
13 8

31. [Problem Solving 1] *

The computer game *Tetris* involves shapes made of four squares. Each square must share at least one side with another square. How many different configurations are there in the game? [Note: See diagrams below. If one shape can be rotated to match another shape, then the shapes are not different.]

Same shapes   Different shapes
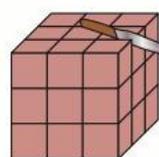
32. [Problem Solving 2] *

At a party there were twenty-three students. Deena danced with six boys, Chloe with seven, Moira with eight and so on for all the girls up to the last girl Anna, who danced with all the boys. How many boys were at the party?

33. [Problem Solving 3] *

A solid cube is painted on all 6 faces, and then it is sliced into 27 smaller cubes. How many of these smaller cubes are painted on only one face?

1. [+ Whole Numbers to 10]

+ 4	10	13	9	21	14	18	2	17	15	26

2. [− Whole Numbers to 10]

− 9	16	29	10	23	17	11	24	25	22	18

3. [× Whole Numbers to 12]

× 12	11	4	9	5	12	7	8	10	3	6

4. [÷ Whole Numbers to 12]

÷ 6	24	66	48	72	30	42	54	18	60	36

5. [Large Number +,−] *

$2530 + 691 =$

6. [Large Number ×,÷] *

$43 \times 7 =$

7. [Decimal +,−] *

$30.4 - 18.5 =$

8. [Decimal ×,÷] *

$0.7 \times 0.6 =$

9. [Fraction +,−] *

$\dfrac{8}{15} + \dfrac{2}{15} =$

10. [Fraction ×,÷]

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

11. [Percentages] *

If a $40 book is reduced by 25%, what is the sale price?

$ _____

12. [Decimals / Fractions / Percents]

Of all the tourist arrivals worldwide, 11% are destined for France. Write this percentage as a decimal.

13. [Integers] *

Confuscius was born in 551 BC and died 72 years later. What year was that?

14. [Rates / Ratios]

Simplify the ratio

$18 : 30 : 72$ [: :]

15. [Exponents / Square Roots]

$60^2 =$

16. [Order of Operations] *

$(5 + 9) \div (15 - 8) =$

17. [Exploring Numbers]

Round 4826 to the nearest hundred.

18. [Multiples / Factors / Primes]

What is the next prime number after 80?

19. [Number Patterns]

Complete the pattern:

$0, 1, 4, 5, 8,$ _____ , _____

20. [Expressions]

Choose the like terms:

$z, 2a, 3z$

21. [Substitution] *

If $h = 7$ and $i = 3$, find the value of $2h + 2i$

22. [Equations] *

$3 \times$ [ ] $- 10 = 14$

23. [Rules / Graphs]

Complete the table for this rule:

No. of hours (x)	Distance travelled in km (90x)
1	$90 \times 1 = 90$
2	
3	
4	
5	
6	

24. [Units of Measurement / Time] *

$1.5 \text{ L} = \boxed{} \text{ mL}$

25. [Perimeter] *

Calculate the perimeter of the polygon.

5.5 cm   1 cm   2 cm
2.5 cm   3 cm
4.5 cm

$\boxed{}$ cm
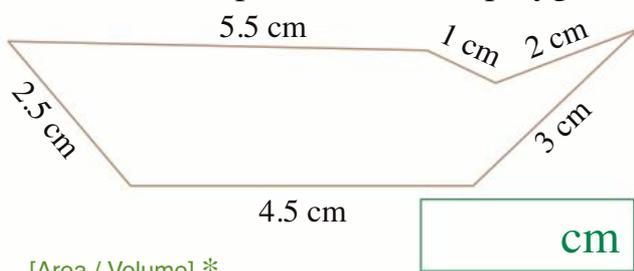
26. [Area / Volume] *

Using Volume = length × width × height, find the volume of the rectangular prism.
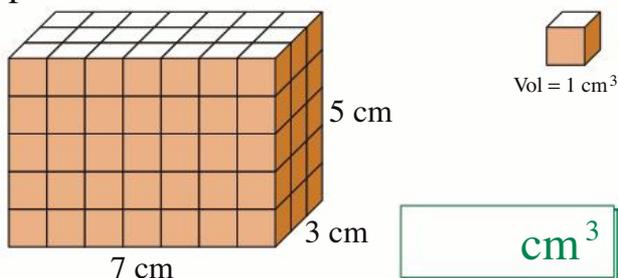
Vol = 1 cm³

5 cm
3 cm
7 cm

$\boxed{}$ cm³

27. [Shapes]

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

$\boxed{}$
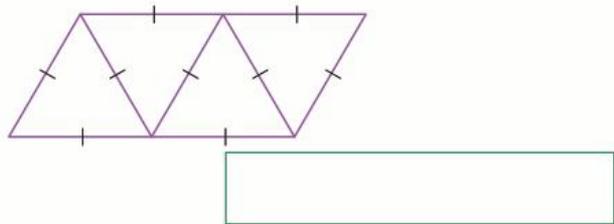
28. [Location / Transformation]

Redraw this shape after reflecting it in the horizontal dotted line.
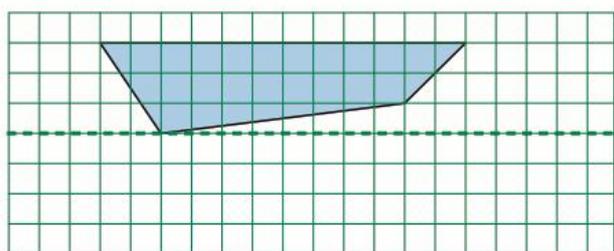
29. [Statistics] *

This table shows the number of countries in each of the world's regions. Find the median of the data.

World's regions	Countries
North America	3
South America	12
Australia/Oceania	15
Central America/Caribbean	20
Middle East/North Africa	23
Asia	27
Africa	47
Europe	48

$\boxed{}$

30. [Probability] *

A box of shaped biscuits contains 15 squares, 17 triangles, 6 rectangles, 4 diamonds and 8 hexagons. If a biscuit is chosen at random, what is the probability of choosing a square one? [Give your answer as a fraction in simplest form.]

$\boxed{}$

31. [Problem Solving 1] *

Nine lollies cost less than $10, while ten lollies cost more than $11. How much does each lolly cost?

$\boxed{\$}$

32. [Problem Solving 2] *

Alex was counting his coins by 2s. Because one coin was left over, he counted them by 3s. Again there was one left over so he counted by 4s, then 5s, then 6s and finally by 7s. Each time there was one left over. Knowing that Alex did not have more than 800 coins, exactly how many coins did he have?

$\boxed{}$

33. [Problem Solving 3] *

Pierre de Fermat, a 17th century French lawyer, stated that any whole number can be written as the sum of four or less square numbers.

For example: $15 = 3^2 + 2^2 + 1^2 + 1^2$

Express 61 as such a sum.

$61 = \boxed{}$

23 24 25 26 27 28 29 30 31 32 33

1. [+ Whole Numbers to 10]

+ 6	15	18	3	9	24	22	10	16	11	7

2. [− Whole Numbers to 10]

− 8	11	17	15	12	29	48	14	16	10	23

3. [× Whole Numbers to 12]

× 9	10	11	7	3	12	6	8	4	9	5

4. [÷ Whole Numbers to 12]

÷ 12	96	132	48	144	84	36	72	120	60	108

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
He who would leap high must take a long run.
Danish Proverb

5. [Large Number +,−] *

$2453 + 389 =$

6. [Large Number ×,÷] *

$162 \times 9 =$

7. [Decimal +,−] *

$27.3 - 9.6 =$

8. [Decimal ×,÷] *

$1.4 \times 0.8 =$

9. [Fraction +,−] *

$\dfrac{9}{10} - \dfrac{7}{10} =$

10. [Fraction ×,÷]

$\dfrac{1}{3} \times \dfrac{5}{8} =$

11. [Percentages] *

In a store a $70 bag is marked '30% off'. What is the sale price of the bag?

$

12. [Decimals / Fractions / Percents]

Write 0.09 as a percentage.

13. [Integers] *

Roman civilisation began in 509 BC and ended 985 years later. What year did it end?

14. [Rates / Ratios]

Simplify the ratio

$10 : 30 : 45$: :

15. [Exponents / Square Roots]

$50^2 =$

16. [Order of Operations] *

$(8 + 4 \times 7) \div 18 =$

17. [Exploring Numbers]

Round 908 to the nearest ten.

18. [Multiples / Factors / Primes]

List all the prime numbers between 50 and 60.

19. [Number Patterns]

Complete the pattern:

$1, 5, 13, 25, 41,$ ____ , ____

20. [Expressions]

Choose the like terms:

$g, 2g, 2h$

21. [Substitution] *

If $c = 3$ and $d = 2$, find the value of $-2c - 8d$

22. [Equations] *

$40 - 3 \times$ ____ $= 25$

23. [Rules / Graphs]

Complete the table of values for the linear rule $y = 10 - x$

x	y = 10 − x	y
5	y = 10 − 5 = 5	5
6	y =	
7		
8		
9		
10		

24. [Units of Measurement / Time] *

$600 \text{ mL} = $ ⬚ L

25. [Perimeter] *

Calculate the perimeter of the polygon.

6 cm

2 cm

3 cm

⬚ cm
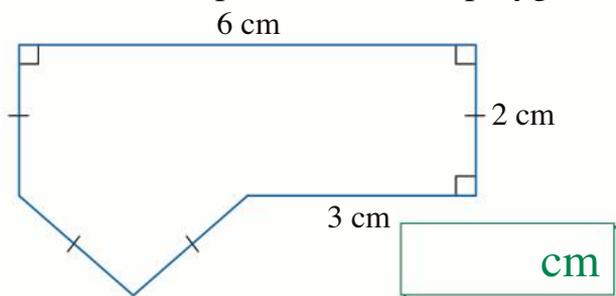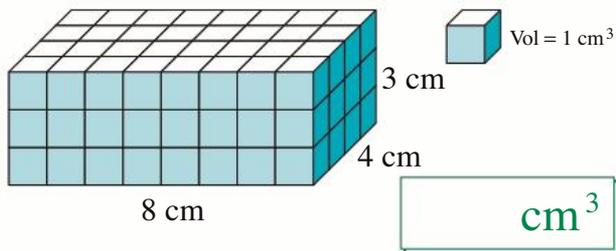
26. [Area / Volume] *

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


3 cm

Vol = 1 cm³

4 cm

8 cm

⬚ cm³

27. [Shapes]

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

⬚
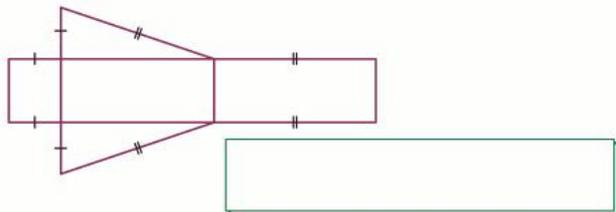
28. [Location / Transformation]

Redraw this shape after rotating it 180° about the point O.

O
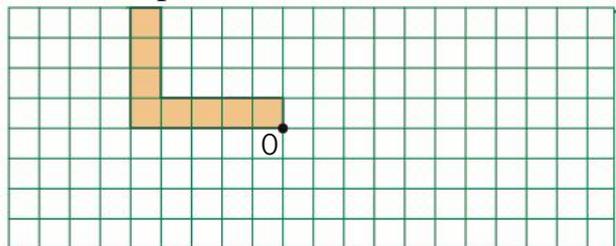
29. [Statistics] *

This table shows the number of storeys of the ten tallest buildings in Melbourne (2020 data). Find the median and mode of the data.

Melbourne - Tallest Buildings (Number of Storeys)									
63	63	68	69	70	72	78	84	91	100

median = mode =

30. [Probability]

A modern piano has 52 white keys and 36 black keys. What is the probability of pressing a white key? [Give your answer as a fraction in simplest form.]

⬚

31. [Problem Solving 1] *

Move just one match to make this equation correct.

32. [Problem Solving 2]

Complete the multiplication table.

×	4		5	
3		21		27
			25	
6				
	28			

33. [Problem Solving 3] *

Andrea, Belinda and Chloe spent the evening with their husbands. Eugene was seen with his wife dining at *Stake Out* but they were not the couple that went off in a limousine. Belinda went to see *Rainbo IV* but not with David. Andrea and her husband travelled by taxi and it was neither Flavian nor Eugene who was seen with his wife on a tandem bike. Who was it then who had a fun night at the *Water World* fun park, and how did they get there?

1. [+ Whole Numbers to 10]

	5	22	9	31	10	4	16	13	19	17
+ 7										

2. [− Whole Numbers to 10]

	26	13	10	5	8	22	27	9	21	24
− 4										

3. [× Whole Numbers to 12]

	8	3	11	6	7	9	10	12	4	5
× 11										

4. [÷ Whole Numbers to 12]

	15	55	35	50	60	30	45	40	20	25
÷ 5										

5. [Large Number +,−] *

$4283 + 2976 =$

6. [Large Number ×,÷] *

$5034 \times 6 =$

7. [Decimal +,−] *

$8.02 - 0.08 =$

8. [Decimal ×,÷] *

$2.5 \times 0.9 =$

9. [Fraction +,−] *

$\dfrac{7}{8} - \dfrac{3}{8} =$

10. [Fraction ×,÷]

$\dfrac{4}{5} \times \dfrac{2}{3} =$

11. [Percentages] *

In a store a $75 shirt is labelled 'Save 40%'. What is the sale price of the shirt?

$

12. [Decimals / Fractions / Percents]

Write 0.6 as a percentage.

13. [Integers] *

Oxygen melts at −218ºC. Heat it a further 35ºC, and it boils. At what temperature does oxygen boil?

ºC

14. [Rates / Ratios]

Simplify the ratio

$42 : 28 : 21$: :

15. [Exponents / Square Roots]

$70^2 =$

16. [Order of Operations] *

$17 - (9 - 12 \div 3) =$

17. [Exploring Numbers]

Round 23 509 to the nearest thousand.

18. [Multiples / Factors / Primes]

List the first 3 odd composite numbers.

19. [Number Patterns]

Complete the pattern:

$26, 25, 20, 19, 14,$ ___ , ___

20. [Expressions]

Choose the like terms:
$vw, 3, w, 3vw$

21. [Substitution] *

If $d = 5$ and $e = 3$, find the value of
$4de - 3e$

22. [Equations] *

$12 + 20 \times$ ___ $= 72$

23. [Rules / Graphs]

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

x	y = 5x	y
0	$y = 5 \times 0 = 0$	0
1	$y =$	
2		
3		
4		
5		

24. [Units of Measurement / Time] *

$10\,500 \text{ mL} = $ _____ L

25. [Perimeter] *

Calculate the perimeter of the polygon.

56 mm

24 mm

50 mm

20 mm

_____ mm
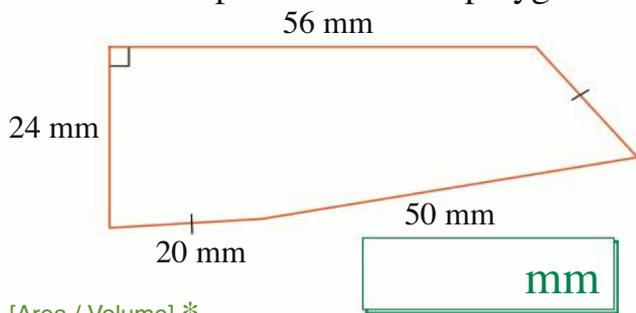
26. [Area / Volume] *

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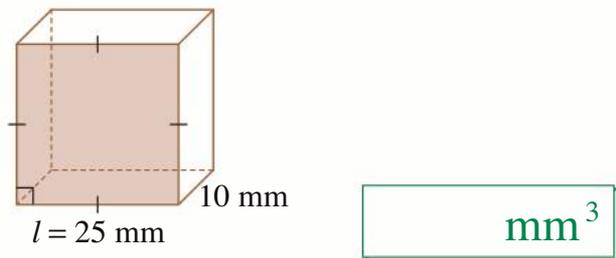
10 mm

$l = 25$ mm

_____ mm^3

27. [Shapes]

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

_____
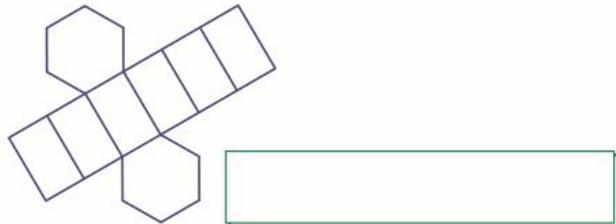
28. [Location / Transformation]

Redraw this parallelogram after translating it 7 units right and 3 units down.
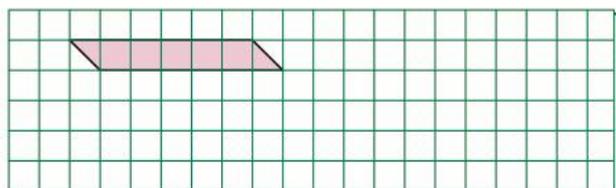
29. [Statistics] *

This table shows the number of ski runs at selected resorts in Colorado. Find the mean (average) and range of the data.

Resorts in Colorado - ski runs					
5	15	54	85	90	105

mean = _____ range = _____

30. [Probability] *

Jane randomly looks inside a 24-page magazine. Find the probability of looking at a page that is a prime number. [Give your answer as a fraction in simplest form.]

_____

31. [Problem Solving 1] *

Which of the numbers 4, 5, 6, 7 or 8, when placed as a denominator in the fraction $\frac{17}{?}$, gives a result closest to $2\frac{1}{2}$?

$\frac{17}{}$

32. [Problem Solving 2] *

Cross out the fewest numbers in this list so that none of the numbers that are left are twice the value of any other number in the list.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24

How many numbers must you cross out? _____

33. [Problem Solving 3] *

The number 75 can be expressed as the sum of two or more consecutive positive integers in five different ways. One such sequence begins with 13:
$13 + 14 + 15 + 16 + 17 = 75$
With what number does each of the other four sequences begin?

_____

1. [+ Whole Numbers to 10]

	12	18	9	15	6	13	17	11	20	4
+ 9										

2. [− Whole Numbers to 10]

	27	11	18	23	12	24	29	16	25	10
− 5										

3. [× Whole Numbers to 12]

	12	4	7	11	3	10	6	5	9	8
× 4										

4. [÷ Whole Numbers to 12]

	32	88	56	80	40	72	48	96	64	24
÷ 8										

MATHS MATE

GREEN

Term 2 - Sheet 8

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
You can't act like a skunk without someone getting wind of it.
Lorene Workman

5. [Large Number +,−] *

$6304 + 3296 =$

6. [Large Number ×,÷] *

$2109 \times 8 =$

7. [Decimal +,−] *

$6.27 - 4.88 =$

8. [Decimal ×,÷] *

$1.3 \times 0.7 =$

9. [Fraction +,−] *

$\dfrac{7}{12} + \dfrac{7}{12} =$

10. [Fraction ×,÷]

$\dfrac{1}{3} \times \dfrac{2}{11} =$

11. [Percentages] *

In a store a $300 camera is discounted by 15%. What is the sale price of the camera? $

12. [Decimals / Fractions / Percents]

The Australian population accounts for 0.3% of the world's population. Write this percentage as a decimal.

13. [Integers] *

At its lowest point, the Euro tunnel is 115 m below sea level. At this point, the tunnel is 50 m below the sea bed. How deep is the ocean?   m

14. [Rates / Ratios]

Simplify the ratio
$32 : 56 : 40$: :

15. [Exponents / Square Roots]

$80^2 =$

16. [Order of Operations] *

$(9 - 2) \times (8 + 3) =$

17. [Exploring Numbers]

Round $16\,244$ to the nearest hundred.

18. [Multiples / Factors / Primes]

Choose the composite numbers:
$29, 30, 31, 32, 33, 34, 35, 36, 37$

19. [Number Patterns]

Complete the pattern:
$1, 8, 27, 64,$ ___ , ___

20. [Expressions]

Choose the like terms:
$2ab, 2a, 2b, ab$

21. [Substitution] *

If $f = 21$ and $g = -2$, find the value of
$\dfrac{f - 7}{g}$

22. [Equations] *

$7 \times (15 - \boxed{}) = 21$

23. [Rules / Graphs]

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

x	$y = x - 3$	y
0	$y = 0 - 3 = -3$	-3
1	$y =$	
2		
3		
4		
5		

24. [Units of Measurement / Time] *

$12.8 \text{ L} = \boxed{} \text{ mL}$

25. [Perimeter] *

Calculate the perimeter of the polygon.

20 mm
26 mm
15 mm
50 mm
20 mm

$\boxed{ \text{mm}}$
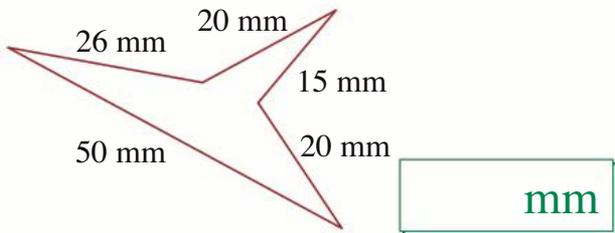
26. [Area / Volume] *

Find the volume of the rectangular prism.

1 cm
2.5 cm
6 cm

$\boxed{ \text{cm}^3}$
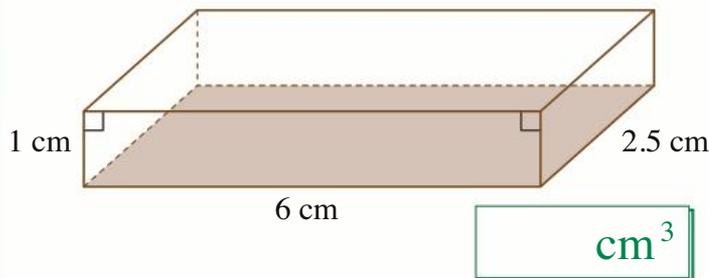
27. [Shapes]

On this net of a cube, a face is marked B. Label the opposite face with a T.
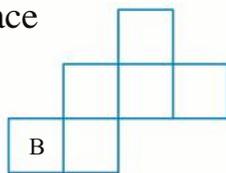
B

28. [Location / Transformation]

Redraw this trapezium after reflecting it in the vertical dotted line.
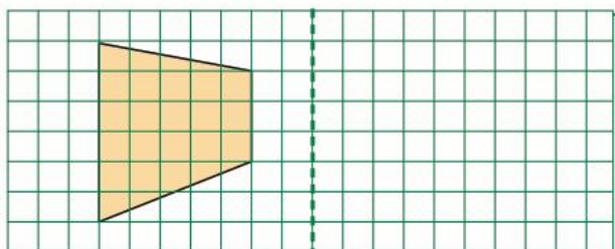
29. [Statistics] *

The table shows the number of calories per serving of some raw vegetables. Find the mean (average) and range of the data.

Vegetable	Calories
lettuce	4
cucumber	8
mushroom	15
zucchini	20
tomato	22
carrot	25
red capsicum	37
green peas	117

mean = $\qquad$ range =

30. [Probability] *

A CD player holds 5 CDs, and each disc has 12 songs. If the CDs are changed randomly, find the probability that your favourite song is played first.
[Give your answer as a fraction.]

31. [Problem Solving 1] *

Find two whole numbers whose sum is 166 and difference is 32.

32. [Problem Solving 2] *

On Martha's 9th birthday, her mother made a cake which had the digits 0 to 9 around the edge in red icing. Using the guidelines below, her mother cut the cake into 3 pieces so that the numbers on each piece added to the same total. Mark the cuts. What fraction of the whole cake was the largest piece?

9 0
8 1
7 Happy 9th 2
Birthday
6 Martha 3
5 4

33. [Problem Solving 3] *

One day Barney caught 100 kg of fish. The total weight of the three largest fish was 35 kg and total weight of the three smallest fish was 25 kg. How many fish did Barney catch altogether?

MATHS MATE

GREEN

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. [+ Whole Numbers to 10]	1	1	1	1	1.1,2	1	1	1	1	1.1,2
2. [− Whole Numbers to 10]	2	2	2	2	2.1,2	2	2	2	2	2.1,2
3. [× Whole Numbers to 12]	3	3	3	3	3.1	3	3	3	3	3.1
4. [÷ Whole Numbers to 12]	4	4	4	4	4.1	4	4	4	4	4.1
5. [Large Number +,−]	5	5	5	5	5.4	5	5	5	5	5.3
6. [Large Number ×,÷]	6	6	6	6	6.7	6	6	6	6	6.6,8
7. [Decimal +,−]	7	7	7	7	7.1	7	7	7	7	7.2
8. [Decimal ×,÷]	8	8	8	8	8.6	8	8	8	8	8.5
9. [Fraction +,−]	9	9	9	9	9.3	9	9	9	9	9.6,8
10. [Fraction ×,÷]	10	10	10	10	10.5	10	10	10	10	10.4
11. [Percentages]	11	11	11	11	11.5	11	11	11	11	11.4,6
12. [Decimals / Fractions / Percentages]	12	12	12	12	12.8,9	12	12	12	12	12.10,11
13. [Integers]	13	13	13	13	13.7	13	13	13	13	13.8
14. [Rates / Ratios]	14	14	14	14	14.5,6	14	14	14	14	14.7
15. [Exponents / Square Roots]	15	15	15	15	15.4	15	15	15	15	15.5
16. [Order of Operations]	16	16	16	16	16.5	16	16	16	16	16.5
17. [Exploring Numbers]	17	17	17	17	17.6,7	17	17	17	17	17.8
18. [Multiples / Factors / Primes]	18	18	18	18	18.8	18	18	18	18	18.9
19. [Number Patterns]	19	19	19	19	19.8	19	19	19	19	19.9
ALGEBRA										
20. [Expressions]	20	20	20	20	20.3	20	20	20	20	20.5
21. [Substitution]	21	21	21	21	21.8	21	21	21	21	21.9
22. [Equations]	22	22	22	22	22.5	22	22	22	22	22.6
23. [Rules / Graphs]	23	23	23	23	23.7	23	23	23	23	23.8
MEASUREMENT										
24. [Units of Measurement / Time]	24	24	24	24	24.1	24	24	24	24	24.5
25. [Perimeter]	25	25	25	25	25.5	25	25	25	25	25.6
26. [Area / Volume]	26	26	26	26	26.8	26	26	26	26	26.9
SPACE										
27. [Shapes]	27	27	27	27	27.9	27	27	27	27	27.10,11
28. [Location / Transformation]	28	28	28	28	28.5	28	28	28	28	28.6
STAT.										
29. [Statistics]	29	29	29	29	29.8	29	29	29	29	29.9
PROB.										
30. [Probability]	30	30	30	30	30.5,6	30	30	30	30	30.7
PROBLEM SOLVING										
31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
Total Correct										

1. [+ Whole Numbers to 10]

+ 10	2	6	13	−14	10	8	16	25	9	−17

2. [− Whole Numbers to 10]

− 3	19	−5	26	8	11	12	−10	13	17	14

3. [× Whole Numbers to 12]

× 8	6	9	3	11	4	12	7	10	8	5

4. [÷ Whole Numbers to 12]

÷ 9	108	63	27	90	45	81	72	99	36	54

5. [Large Number +,−] *

$24\,543 - 6078 =$

6. [Large Number ×,÷] *

$865 \times 17 =$

7. [Decimal +,−] *

$86.14 + 5.98 =$

8. [Decimal ×,÷] *

$1.2 \div 0.4 =$

9. [Fraction +,−] *

$2\frac{3}{8} + 1\frac{5}{8} =$

10. [Fraction ×,÷] *

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

11. [Percentages] *

A computer is priced at $2000. Which is the better deal?
A) Save 30%
B) Take $500 off

12. [Decimals / Fractions / Percents]

The tongue of a chameleon is one and a half times its body length. Write this as a decimal.

13. [Integers]

$6 + (-2) =$

14. [Rates / Ratios] *

Which ratio is equivalent to 3 : 4?
A) 9 : 8
B) 18 : 24
C) 9 : 16

15. [Exponents / Square Roots]

$\sqrt{2500} =$

16. [Order of Operations] *

$(7 - 2)^2 =$

17. [Exploring Numbers]

Place in order from largest to smallest:
$0.204, 0.04, 0.24, 0.42, 0.024$

18. [Multiples / Factors / Primes]

Express 56 as a product of prime numbers by completing the factor tree.
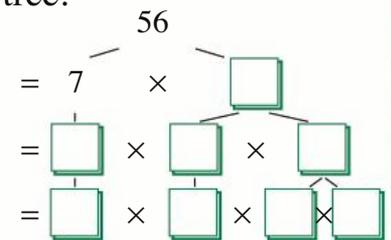
19. [Number Patterns]

Complete the pattern:

$0, 0, 1, 3, 6, \underline{\quad}, \underline{\quad}$

20. [Expressions]

There are x boys and y girls at the camp. How many children are at the camp altogether?
[Express your answer in terms of x and y.]

21. [Substitution] *

Use $d = vt$ to find the distance (d) where $v = 105$ and $t = 3$

22. [Equations]

$3.5 + \boxed{} = 4.3$

23. [Rules / Graphs]

The line above shows:

A) All points where $x = 3$
B) All points where $y = 3$
C) All points where $x + y = 3$

24. [Units of Measurement / Time] *

$120 \text{ s} = \boxed{} \text{ min}$

25. [Perimeter] *

Express all measurements in millimetres and then calculate the perimeter of the kite.

15 mm   4 cm

$\boxed{\text{mm}}$

26. [Area / Volume] *

Find the area of the shaded polygon.

$\boxed{\text{sq. units}}$

27. [Shapes]

Find the value of $x°$.

48° $x°$

28. [Location / Transformation]

Redraw this quadrilateral after reflecting it in the horizontal dotted line and then translating it 5 units to the left.

29. [Statistics]

For how many years is the normal human heart rate expected to be 100 beats per minute?

[Round your answer to the nearest whole number.]

Normal Human Heart Rate

$\boxed{\text{years}}$

30. [Probability] *

'A die is rolled and a number less than 5 comes up.'

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

31. [Problem Solving 1] *

Of the five horses in a race Alfie finished 3 lengths ahead of Charlie, Flo finished 5 lengths ahead of Dolly, Alfie finished 4 lengths behind Bobby and Dolly finished 4 lengths behind Alfie. What is the finishing position of Flo?

32. [Problem Solving 2] *

Every day I swim the same number of laps in my pool. After completing a certain number of laps, I have swum 20% of the total, and after one more lap I have completed 25% of the total. How many laps do I swim each day?

33. [Problem Solving 3] *

If you calculated the following sum
$9 + 99 + 999 + 9999 + 99\,999 + \ldots$
where the last number to be added consists of nine digits of 9, how many times would the digit 1 appear in the answer?

[Hint: $9 = 10 - 1$, $99 = 100 - 1$, ...]

1. [+ Whole Numbers to 10]

	16	−3	7	2	14	−8	15	20	9	11
+ 2										

2. [− Whole Numbers to 10]

	21	−4	15	12	7	−8	10	13	9	16
− 7										

3. [× Whole Numbers to 12]

	12	7	11	4	10	3	9	8	5	6
× 10										

4. [÷ Whole Numbers to 12]

	12	21	30	33	15	27	18	36	24	9
÷ 3										

MATHS MATE

GREEN

Term 3 - Sheet 2

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
He who laughs last, didn't get the joke.

5. [Large Number +,−] *

$84\,000 - 3782 =$

6. [Large Number ×,÷] *

$243 \times 36 =$

7. [Decimal +,−] *

$1.69 + 24.5 =$

8. [Decimal ×,÷] *

$0.6 \div 0.3 =$

9. [Fraction +,−] *

$2\frac{7}{10} + \frac{7}{10} =$

10. [Fraction ×,÷] *

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

11. [Percentages] *

A car is priced at $12\,000$. Which is the better deal?
A) 10% off
B) $1500 cash back

12. [Decimals / Fractions / Percents] *

Change $\frac{3}{4}$ to a decimal.

13. [Integers]

$-7 + 2 =$

14. [Rates / Ratios] *

Complete the equivalent ratios:

$20 : 15 = 4 : \boxed{}$

15. [Exponents / Square Roots]

$\sqrt{14\,400} =$

16. [Order of Operations] *

$6 + (9 - 3)^2 =$

17. [Exploring Numbers] *

Which fraction has greater value?

$\frac{5}{8}$ or $\frac{3}{4}$

18. [Multiples / Factors / Primes]

Express 72 as a product of prime numbers by completing the factor tree.

19. [Number Patterns]

Complete the pattern:

$80, 77, 71, 62, 50, \underline{}, \underline{}$

20. [Expressions]

Enzo bought n movie tickets for $12 each. How much did he pay in total?   [Express your answer in terms of n.]

21. [Substitution] *

Use $A = l^2$ to find the area (A) of a square where $l = 10$

22. [Equations]

$6.4 - \boxed{} = 5$

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

23. [Rules / Graphs]

Draw a line through all the points where the x-coordinate is 2 more than the y-coordinate (line of equation $y = x - 2$).
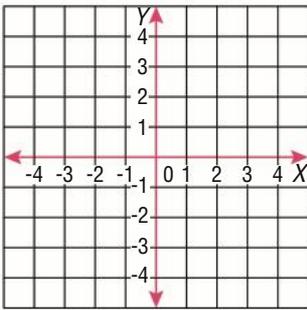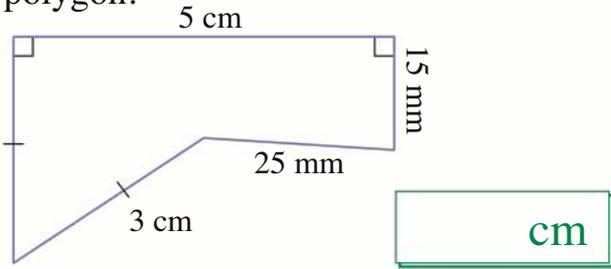
24. [Units of Measurement / Time] *

$5 \text{ h} = \boxed{}$ min
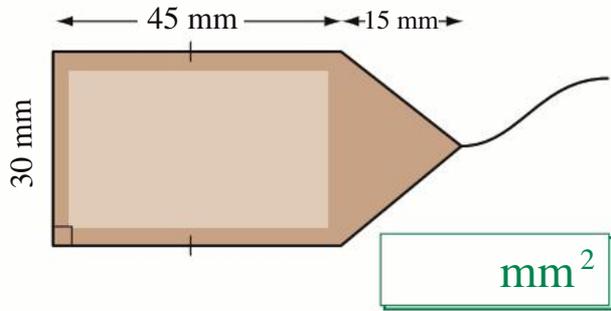
25. [Perimeter] *

Express all measurements in centimetres and then calculate the perimeter of the polygon.

$\boxed{}$ cm
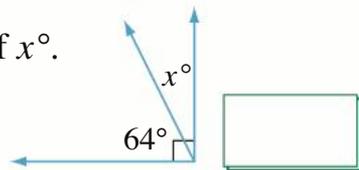
26. [Area / Volume] *

Find the area of the pentagonal name tag.

$\boxed{}$ mm^2
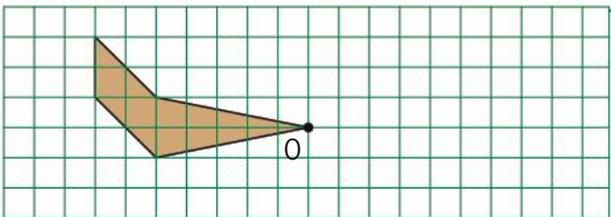
27. [Shapes] *

Find the value of $x°$.

28. [Location / Transformation]

Redraw this shape after rotating it 180° about the point O and then translating it 2 units up.

29. [Statistics]

In which year was there the greatest difference in GDP growth between Botswana and Kenya?

Botswana & Kenya - GDP growth

$\boxed{}$
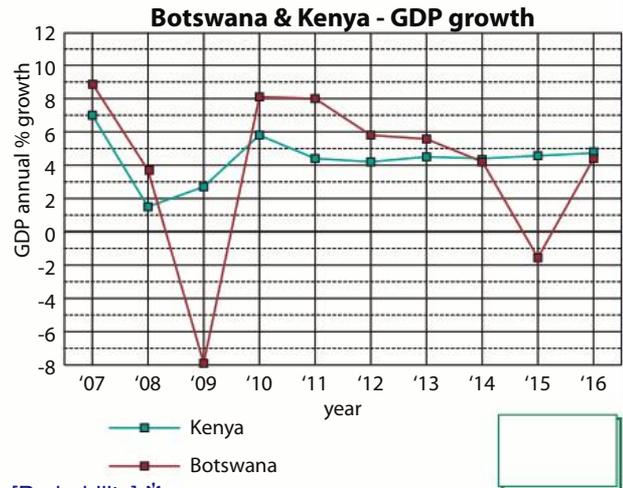
30. [Probability] *

Which event is most unlikely to happen?
A) drawing an Ace from a deck of 52 playing cards
B) rolling a 6 on a standard die
C) being run over by a stampeding elephant

$\boxed{}$

31. [Problem Solving 1] *

The base 5 number 213_5 is equivalent
to: $\quad 2 \times 5^2 + 1 \times 5^1 + 3 \times 5^0$
$\quad = \quad 50 \quad + \quad 5 \quad + \quad 3$
$\quad = 58$ in base 10 $[5 \times 10^1 + 8 \times 10^0]$

What is 310_5 equal to in base 10?

$\boxed{}$

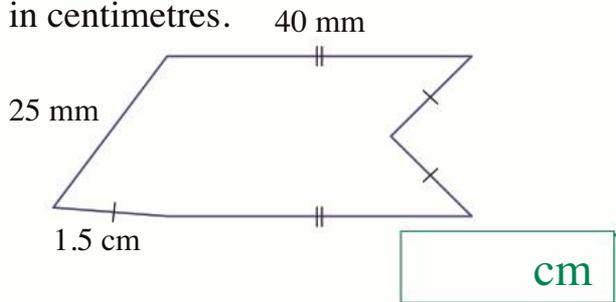**32.** [Problem Solving 2]

Use each number between 1 and 9 once to complete the equations in this square.
[In each row and column the order of operations must be followed.]

33. [Problem Solving 3] *

The telephone numbers in a small town have two digits. They run from 00 to 99. Of the 100 possible numbers, those that become smaller when reversed are not used, i.e. 21 is not used. What is the maximum number of telephone numbers this town could have?

$\boxed{}$

1. [+ Whole Numbers to 10]

+ 9	15	–6	10	13	19	7	12	4	8	–11

2. [– Whole Numbers to 10]

– 6	10	5	13	–9	22	11	14	–8	7	16

3. [× Whole Numbers to 12]

× 3	11	4	9	6	8	12	7	10	3	5

4. [÷ Whole Numbers to 12]

÷ 12	48	132	120	72	144	108	96	36	60	84

5. [Large Number +,–] *

$76\,000 - 1953 =$

6. [Large Number ×,÷] *

$4679 \times 12 =$

7. [Decimal +,–] *

$33.8 + 9 =$

8. [Decimal ×,÷] *

$7.5 \div 0.5 =$

9. [Fraction +,–] *

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

10. [Fraction ×,÷] *

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

11. [Percentages] *

Shoes are priced at $120. Which is the better deal ?
A) 25% discount
B) Reduce by $\frac{1}{3}$

12. [Decimals / Fractions / Percents] *

Write 0.4 as a fraction in simplest form.

13. [Integers]

$-1 + 9 =$

14. [Rates / Ratios] *

Complete the equivalent ratios:

$$\frac{12}{16} = \frac{3}{\square}$$

15. [Exponents / Square Roots]

$\sqrt{8100} =$

16. [Order of Operations] *

$2 \times (20 - 9)^2 =$
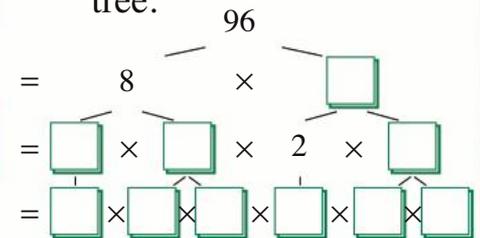
17. [Exploring Numbers] *

Which fraction has greater value?

$\frac{7}{10}$ or $\frac{8}{15}$

18. [Multiples / Factors / Primes]

Express 96 as a product of prime numbers by completing the factor tree.

$$= \quad 8 \quad \times \quad \square$$
$$= \square \times \square \times 2 \times \square$$
$$= \square \times \square \times \square \times \square \times \square$$

19. [Number Patterns]

Complete the pattern:

$45, 33, 23, 15, 9,$ ____ , ____

20. [Expressions]

A plant grew 2 cm every day for d days. How much did it grow?

cm

21. [Substitution] *

Use $A = \dfrac{bh}{2}$ to find the area (A) of a triangle where $b = 4$ and $h = 5$

22. [Equations]

$\square \times 1.5 = 7.5$

23. [Rules / Graphs]

Draw a line through all the points where the *x*-coordinate and the *y*-coordinate add to 2 (line of equation $x + y = 2$).
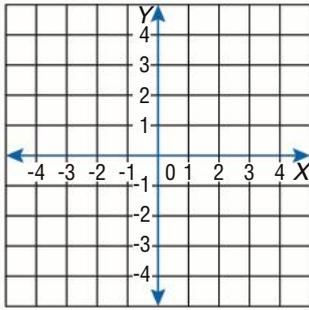
24. [Units of Measurement / Time] *

4 min 20 s = [　　　] s

25. [Perimeter] *

Calculate the perimeter of the polygon in millimetres.
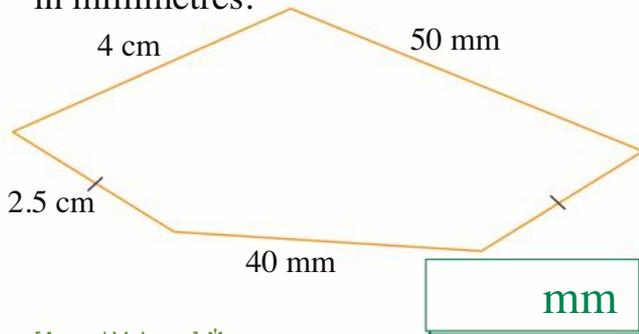
4 cm　　　50 mm

2.5 cm

40 mm

[　　　] mm

26. [Area / Volume] *

Find the area of the polygon.

1 cm

6 cm

[　　　] cm^2

27. [Shapes] *

Find the value of $x°$.

$x°$

57°

[　　　]
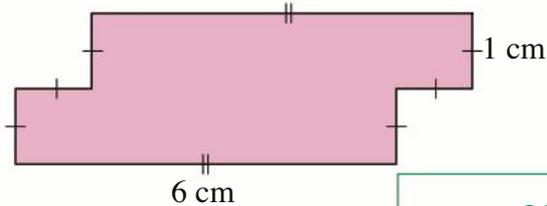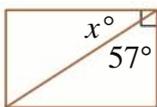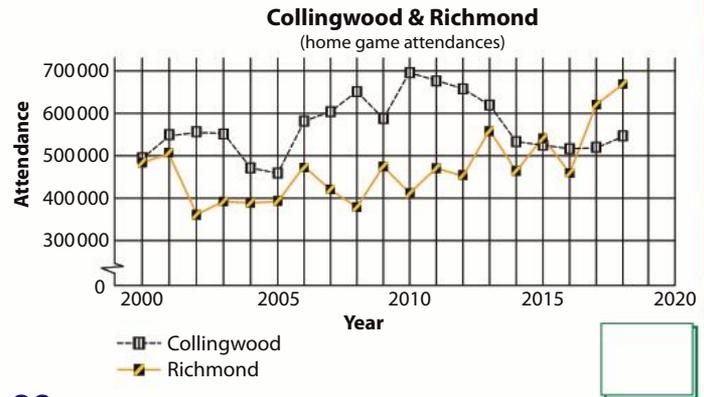
28. [Location / Transformation]

Redraw this rhombus after rotating it 90° anticlockwise about point D and then reflecting it in the vertical dotted line.

D
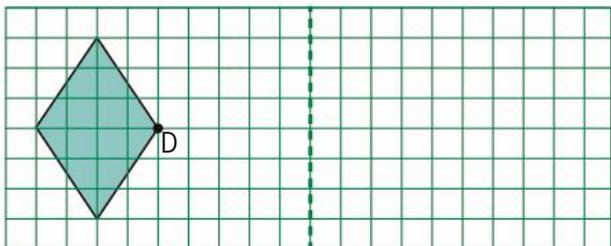
29. [Statistics]

For how many years between 2000 and 2018 was the number of people at Collingwood home games less than that of Richmond?

Collingwood & Richmond
(home game attendances)

Attendance

700 000
600 000
500 000
400 000
300 000
0

2000　　2005　　2010　　2015　　2020

Year

--□-- Collingwood
--▲-- Richmond

[　　　]

30. [Probability] *

Which has a 50% chance of success?

A) drawing a vowel from the letters A to Z

B) selecting an even number from the numbers 10 to 19

C) choosing a diamond from a deck of 52 playing cards

[　　　]

31. [Problem Solving 1] *

A number of students are evenly spaced around a circle. The fourth student is directly opposite the tenth student. How many students are in the circle?

[　　　]

32. [Problem Solving 2] *

Two taps drip together at exactly 1:00 pm. One tap then drips again every 68 seconds while the other tap continues to drip every 72 seconds. At what time will the two taps both drip together again?

[　　　]

33. [Problem Solving 3] *

Deduce the 3-digit secret number.
[A cow means a number is correct in value but in the wrong position. A bull indicates that a number is both correct in value and in the correct position. i.e. 2 cows and 1 bull would indicate that all three numbers were correct but two were in the wrong positions.]

Guess	Secret Number	Cows	Bulls
1st	1 6 2	-	1
2nd	1 7 5	1	1
3rd	1 6 5	1	-

[　　　]

MATHS MATE

GREEN

Term 3 - Sheet 4

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK
Rossiter's Transport Theory - Buses, trains and aeroplanes never run late; the timetables are simply optimistic.

1. [+ Whole Numbers to 10]

+ 8	10	−6	21	8	13	−19	2	14	7	−15

2. [− Whole Numbers to 10]

− 5	11	5	19	6	−10	3	18	7	−12	14

3. [× Whole Numbers to 12]

× 6	8	11	7	3	5	10	6	4	12	9

4. [÷ Whole Numbers to 12]

÷ 7	35	56	77	63	28	84	70	21	42	49

5. [Large Number +,−] *

$52\,076 - 21\,897 =$

6. [Large Number ×,÷] *

$3074 \times 28 =$

7. [Decimal +,−] *

$49.96 + 17.84 =$

8. [Decimal ×,÷] *

$5.8 \div 0.2 =$

9. [Fraction +,−] *

$2\dfrac{5}{6} + 1\dfrac{5}{6} =$

10. [Fraction ×,÷] *

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

11. [Percentages] *

A gold ring costs $320. Which is the better deal?

A) Save 15%

B) Reduce by $\dfrac{1}{4}$

12. [Decimals / Fractions / Percents] *

Write 0.08 as a fraction in simplest form.

13. [Integers]

$-5 + (-1) =$

14. [Rates / Ratios] *

Complete the equivalent ratios:

$\dfrac{7}{10} = \dfrac{\square}{90}$

15. [Exponents / Square Roots]

$\sqrt{12\,100} =$

16. [Order of Operations] *

$(13 - 3)^2 \div 5 =$
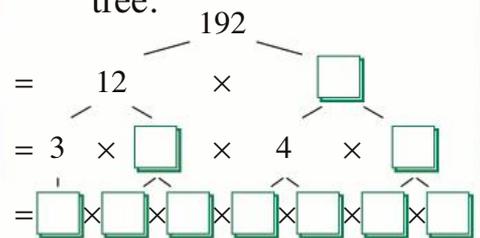
17. [Exploring Numbers] *

Place in order from smallest to largest:

$\dfrac{3}{4}, \dfrac{2}{5}, \dfrac{2}{3}$ ___ , ___ , ___

18. [Multiples / Factors / Primes]

Express 192 as a product of prime numbers by completing the factor tree.

192

$= 12 \times \square$

$= 3 \times \square \times 4 \times \square$

$= \square \times \square \times \square \times \square \times \square \times \square$

19. [Number Patterns]

Complete the pattern:

36, 25, 16, 9, ___ , ___

20. [Expressions]

The canteen had s sausages and sold 25 at lunchtime. How many sausages were left?

21. [Substitution] *

Use $P = 2(l + w)$ to find the perimeter (P) of a rectangle where $l = 7$ and $w = 4$

22. [Equations]

$1.2 \times \square = 4.8$

23. [Rules / Graphs]

Draw a line through all the points where the *x*-coordinate is equal to the *y*-coordinate (line of equation $y = x$).
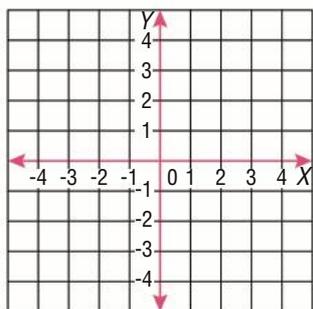
24. [Units of Measurement / Time] ✳

$1\frac{1}{3}$ h = ⬜ min

25. [Perimeter] ✳

Calculate the perimeter of the polygon in centimetres.

40 mm

25 mm

1.5 cm

⬜ cm

26. [Area / Volume] ✳

Find the area of the polygon.

3 cm

2 cm

5 cm

⬜ cm²

27. [Shapes] ✳

Find the value of $x°$.

15°

$x°$ 55°

⬜
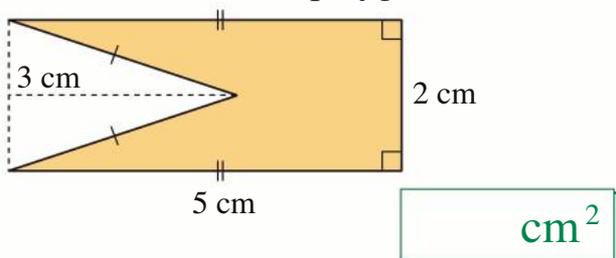
28. [Location / Transformation]

Redraw this trapezium after reflecting it in the vertical dotted line and then translating it 2 units up.
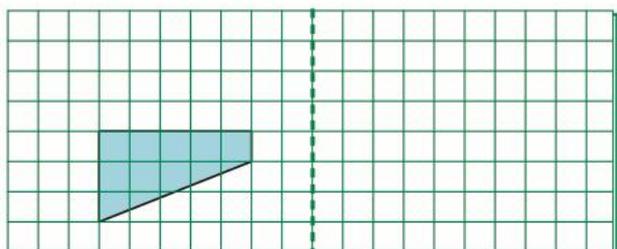
29. [Statistics]

Which space object orbits the earth at 750 km/s?

Altitude   The Moon   **SPEED IN CIRCULAR EARTH ORBIT**
                    0   1   2   3   4   5   6   7   8   9
100 000 km —   Speed (×100 km/s)
Geosynchronous Earth Orbit   GEO GPS
10 000 km —   Global Positioning System   Laser geodynamics satellite
                                                Lageos
1000 km —
                                            HST
                                ISS   Hubble Space
                        International Space Station Telescope
100 km —
10 km —   • ---- Jet
0 km —   •---- Earth's surface

⬜
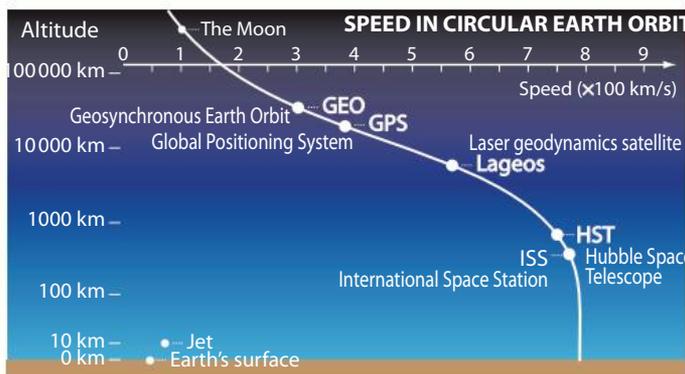
30. [Probability] ✳

Which event is most likely to happen?
A) selecting a vowel from the word RADIATION
B) tossing 'heads' on a flipped coin
C) picking a blue ticket from a hat containing 8 red and 5 blue tickets

⬜

31. [Problem Solving 1] ✳

How many different rectangles can you make using 12 toothpicks?
[All 12 toothpicks must be used each time.]

e.g. ⬜

⬜
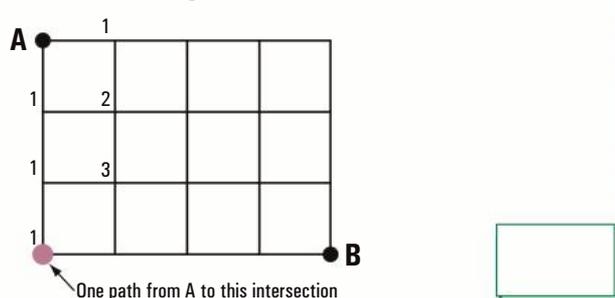
32. [Problem Solving 2] ✳

Mrs Nicholas is buying Christmas presents for her five children to give to one another. If each child gives a present to each of the others, how many presents must she buy?

⬜

33. [Problem Solving 3] ✳

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

A 1

1   2

1   3

1   B

One path from A to this intersection

⬜

1. [+ Whole Numbers to 10]

	8	−2	16	1	10	−13	25	24	−7	9
+ 4										

2. [− Whole Numbers to 10]

	10	22	5	9	26	13	24	17	−1	18
− 8										

3. [× Whole Numbers to 12]

	7	3	8	5	4	2	6	10	9	11
× 9										

4. [÷ Whole Numbers to 12]

	20	40	25	50	15	35	5	45	60	30
÷ 5										

5. [Large Number +,−] *

$28\,790 + 5360 =$

6. [Large Number ×,÷] *

$6550 \div 50 =$

7. [Decimal +,−] *

$86.14 - 5.98 =$

8. [Decimal ×,÷] *

$0.08 \times 0.3 =$

9. [Fraction +,−] *

$\dfrac{13}{10} - \dfrac{2}{5} =$

10. [Fraction ×,÷] *

$\dfrac{3}{7} \times \dfrac{1}{3} =$

11. [Percentages] *

$66\dfrac{2}{3}\%$ of $240 =$

12. [Decimals / Fractions / Percents] *

Change $\dfrac{7}{10}$ to a percentage.

13. [Integers]

$4 - (-6) =$

14. [Rates / Ratios] *

Which is cheaper per issue?

A) $63 for an 18-issue subscription

B) $72 for a 24-issue subscription

15. [Exponents / Square Roots]

$1^5 =$

16. [Order of Operations] *

$8 \times 6 - 2 \times 4^2 =$

17. [Exploring Numbers]

Round 4.645 to the nearest whole number.

18. [Multiples / Factors / Primes] *

Express 45 as a product of its prime factors.

$45 =$

19. [Number Patterns]

Complete the pattern:

$17, 12, 7, 2,$ ___ , ___

20. [Expressions]

Simplify
$h + i + i$

21. [Substitution] *

If $k = 7$,
find the value of
$2k^2$

22. [Equations] *

Solve for x:
$x + 10 = 15$

$x =$

23. [Rules / Graphs]

Lucy walks to the library. How long does it take her to walk 700 metres?

min
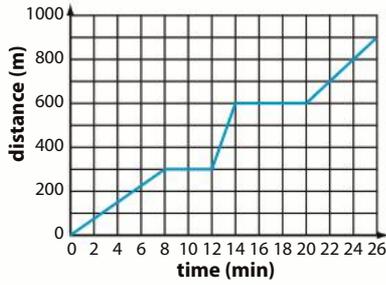
24. [Units of Measurement / Time] *

It took Leo Tolstoy six years to write *War and Peace*. How many months is this? [Leo Tolstoy - Russian author, 1828-1910]

months

25. [Perimeter] *

The perimeter of this scalene triangle is 11.5 cm. Find the missing side length.

? cm

2.5 cm

5.5 cm

cm
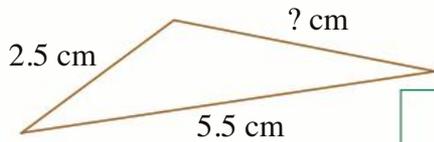
26. [Area / Volume] *

Using Area $= \frac{1}{2}$ (base a + base b) × height find the area of the trapezium.

$b = 7$ cm

2 cm

$a = 4$ cm

cm^2

27. [Shapes] *

Find the value of $x°$.

53°

64° $x°$
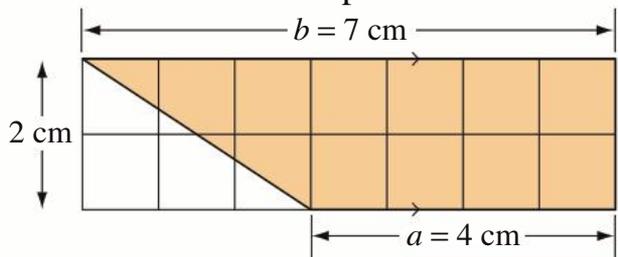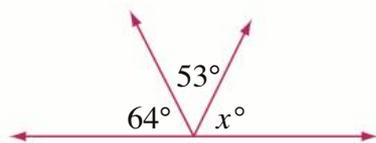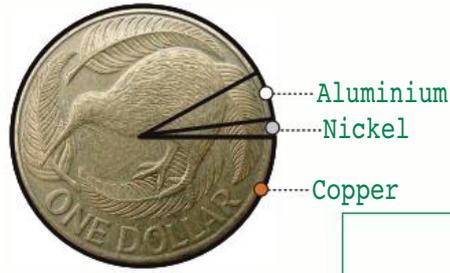
28. [Location / Transformation]

Redraw the rectangle after doubling the coordinates of its vertices.
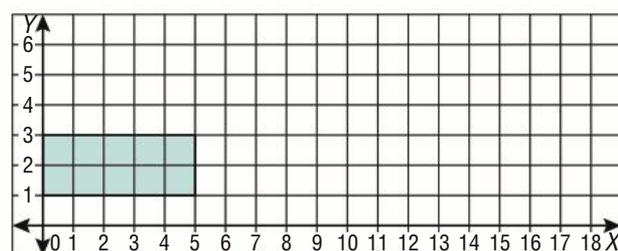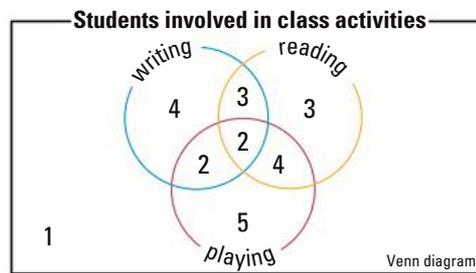
29. [Statistics]

Which metal makes up 6% of the one dollar coin?

Aluminium
Nickel
Copper

30. [Probability] *

What is the probability that a student chosen at random does not participate in reading? [Give your answer as a fraction in simplest form.]

Students involved in class activities

writing   reading
4   3   3
2   2   4
5
1
playing   Venn diagram

31. [Problem Solving 1] *

What is the smallest positive integer, greater than 2, that when divided by 3, 4 or 5 leaves a remainder of 2?

32. [Problem Solving 2] *

If the average of six numbers is 10, and five of them are 5, 8, 12, 15 and 17, what is the sixth number?

33. [Problem Solving 3] *

For an Olympic gymnastics event, the three places on the podium were occupied by Flame, June and Crystal. The silver medal winner, from New Zealand, told Flame that it was her eighteenth birthday today. The youngest medallist was the fourteen-year-old June, from China. If the bronze medal was won by the sixteen-year-old, who won gold and what country was she from?

1. [+ Whole Numbers to 10]

	8	11	17	−4	6	9	−15	23	10	−12
+ 5										

2. [− Whole Numbers to 10]

	19	5	22	18	36	10	27	−11	3	14
− 4										

3. [× Whole Numbers to 12]

	11	6	12	9	7	4	8	5	10	3
× 11										

4. [÷ Whole Numbers to 12]

	9	18	6	21	30	12	27	3	15	24
÷ 3										

5. [Large Number +,−] *

$56\,254 + 2846 =$

6. [Large Number ×,÷] *

$10\,800 \div 900 =$

7. [Decimal +,−] *

$24.83 - 4.97 =$

8. [Decimal ×,÷] *

$0.7 \times 0.41 =$

9. [Fraction +,−] *

$\dfrac{5}{6} - \dfrac{5}{12} =$

10. [Fraction ×,÷] *

$\dfrac{7}{8} \times \dfrac{2}{3} =$

11. [Percentages] *

2% of 80 =

12. [Decimals / Fractions / Percents] *

Change $\dfrac{1}{4}$ to a percentage.

13. [Integers]

$3 - 9 =$

14. [Rates / Ratios] *

Which is cheaper per song?
A) $12 for 15 songs
B) $9 for 10 songs

15. [Exponents / Square Roots] *

$3^3 =$

16. [Order of Operations] *

$(13 - 8 \div 2)^2 =$

17. [Exploring Numbers]

Round 7.778 to one decimal place.

18. [Multiples / Factors / Primes] *

Express 16 as a product of its prime factors.

$16 =$

19. [Number Patterns]

Complete the pattern:

$-28, -22, -16, -10,$ ____ , ____

20. [Expressions]

Simplify

$j + j + k - k + k$

21. [Substitution] *

If $x = 4$, find the value of $2x^2 - x$

22. [Equations] *

Solve for c:

$c - 12 = 3$

$c =$

23. [Rules / Graphs]

This graph shows the height of an elevator in an eight-storey building. At how many storeys does the elevator stop during the 2 minute trip, not counting the ground floor?
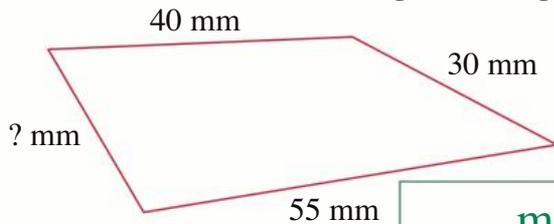
24. [Units of Measurement / Time] *

Ruppell's Griffon Vulture, the highest flying bird, can reach an altitude of 11 300 m. Express this height in kilometres.

km
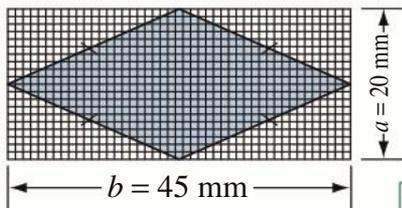
25. [Perimeter] *

The perimeter of this quadrilateral is 150 mm. Find the missing side length.

40 mm

30 mm

? mm

55 mm

mm
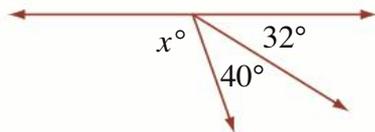
26. [Area / Volume] *

Using Area $= \dfrac{1}{2} \times$ diagonal $a \times$ diagonal b find the area of the rhombus.

$a = 20$ mm

$b = 45$ mm

mm^2

27. [Shapes] *

Find the value of $x°$.

$x°$ $32°$

$40°$
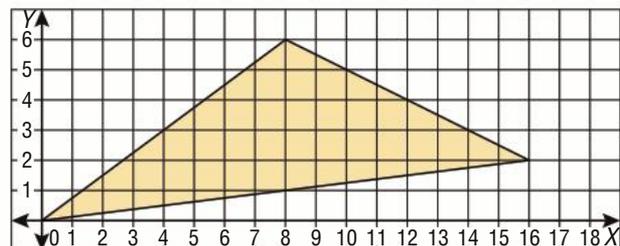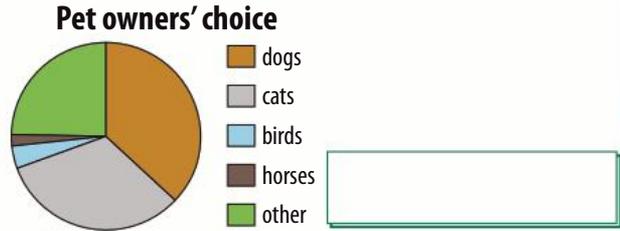
28. [Location / Transformation]

Redraw the triangle after halving the coordinates of its vertices.

29. [Statistics]

Which two animals account for 70% of all pets?

Pet owners' choice

- dogs
- cats
- birds
- horses
- other
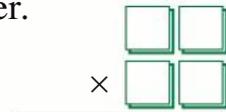
30. [Probability] *

What is the probability that a student chosen at random plays baseball and soccer, but not hockey? [Give your answer as a fraction in simplest form.]

Students involved in holiday sports

soccer   hockey

2   2   2

1

3   2

5

1

baseball

Venn diagram
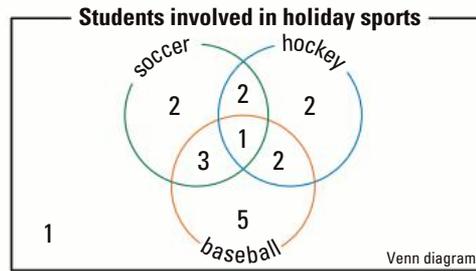
31. [Problem Solving 1] *

Use the digits 1, 3, 5 and 7, once each, to complete the multiplication. Make the largest possible answer.

$\times$

32. [Problem Solving 2] *

A solid 10 cm cube is cut into 1 cm cubes. These smaller cubes are then used to make the largest possible cube that looks solid from the outside, but is hollow inside. How many of the original 1 cm cubes are NOT used to make this larger cube?

33. [Problem Solving 3] *

How many rectangles are there in this diagram of a tennis court? [Hint: There are more than 20 rectangles.]
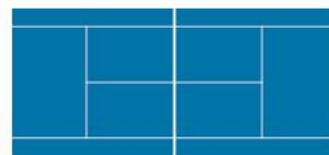
1. [+ Whole Numbers to 10]

	11	25	14	17	−2	8	10	23	−9	16
+ 3										

2. [− Whole Numbers to 10]

	13	28	11	27	12	−20	16	9	−4	30
− 9										

3. [× Whole Numbers to 12]

	9	3	7	12	8	5	10	11	6	4
× 7										

4. [÷ Whole Numbers to 12]

	40	88	32	64	24	56	80	48	16	72
÷ 8										

5. [Large Number +,−] *

$14\,569 + 9518 =$

6. [Large Number ×,÷] *

$8160 \div 12 =$

7. [Decimal +,−] *

$8.64 - 0.9 =$

8. [Decimal ×,÷] *

$0.15 \times 0.6 =$

9. [Fraction +,−] *

$\dfrac{5}{12} + \dfrac{1}{3} =$

10. [Fraction ×,÷] *

$\dfrac{6}{11} \times \dfrac{5}{9} =$

11. [Percentages] *

200% of $90 =$

12. [Decimals / Fractions / Percents] *

In New Zealand 45% of the land cannot support agriculture. Write this percentage as a fraction in simplest form.

13. [Integers]

$-3 - 4 =$

14. [Rates / Ratios] *

Which is the best buy?

A) a 2 kg bag of apples at $7.50

B) 2 kg of loose apples at $3.95 per kg

15. [Exponents / Square Roots] *

$2^6 =$

16. [Order of Operations] *

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

17. [Exploring Numbers]

Round 1.4549 to two decimal places.

18. [Multiples / Factors / Primes] *

Express 44 as a product of its prime factors.

$44 =$

19. [Number Patterns]

Complete the pattern:
$-44, -35, -26, -17,$
_____ , _____

20. [Expressions]

Simplify
$pq + pq + mp - pq + mp$

21. [Substitution] *

If $m = 3$, find the value of $-4m^2$

22. [Equations] *

Solve for a:
$-2 + a = 10$

$a =$

23. [Rules / Graphs]

What distance is Val from school after three minutes?

Distance from Home

- - - - Johnny
——— Val

school

distance (m): 600, 400, 200, home

time (min): 0 2 4 6 8 10

[ ] m
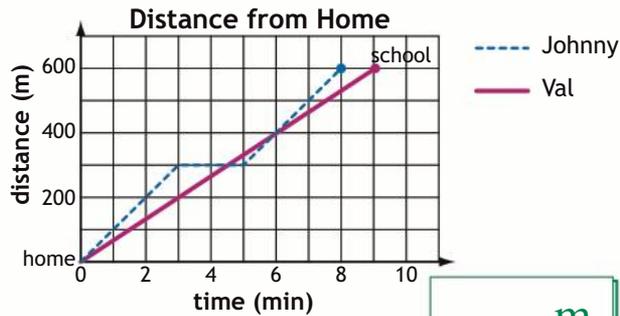
24. [Units of Measurement / Time] *

Some butterflies beat their wings at a rate of 850 beats per second. Is this more or less than $1\,000\,000$ beats per hour?

[ ]

25. [Perimeter] *

The perimeter of this quadrilateral is 166 mm. Find the missing side length.

73 mm
? mm
10 mm
50 mm

[ ] mm
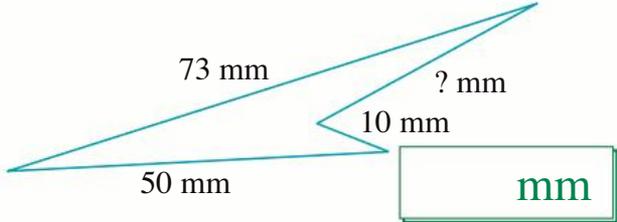
26. [Area / Volume] *
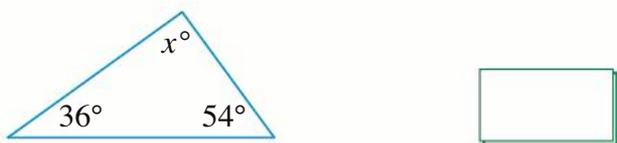
Using $A = \frac{1}{2}(a + b)h$ find the area of the trapezium.

16 mm
53 mm
17 mm

[ ] mm^2

27. [Shapes] *

Find the value of $x°$.

$x°$
36° 54°

[ ]
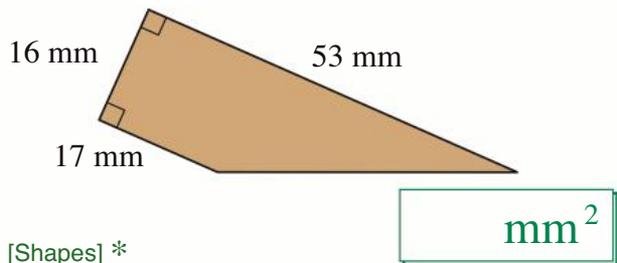
28. [Location / Transformation]
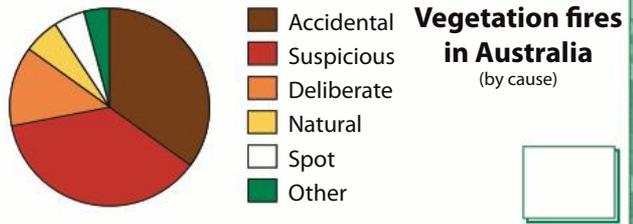
Redraw the parallelogram after multiplying the coordinates of its vertices by 3.

Y
6
5
4
3
2
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 X
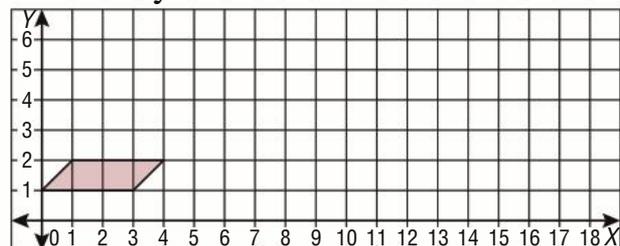
29. [Statistics]
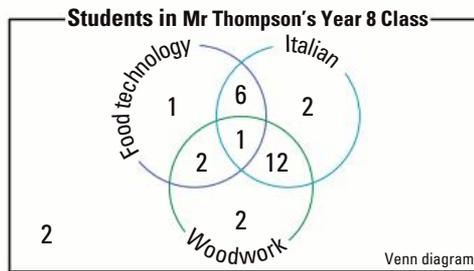
Approximately what percentage of vegetation fires were deliberately lit?
A) 5% B) 15%
C) 25% D) 35%

■ Accidental **Vegetation fires**
■ Suspicious **in Australia**
■ Deliberate (by cause)
■ Natural
□ Spot
■ Other

[ ]

30. [Probability] *

What is the probability that a student chosen at random from Mr Thompson's class does only Italian and Woodwork?
[Give your answer as a fraction in simplest form.]

Students in Mr Thompson's Year 8 Class

Food technology   Italian
1   6   2
1
2   12
2
2
Woodwork
Venn diagram

[ ]

31. [Problem Solving 1] *

A stud farm has 24 horses. One quarter are black, two thirds of the remainder are brown, and the rest are evenly divided between grey and white. How many horses are white?

[ ]

32. [Problem Solving 2] *

A fence, 3 sections long, requires 4 posts and 6 rails, as shown. How many posts and rails are required to build a fence around a rectangular yard, which is 6 sections long and 3 sections wide?

posts =   rails =

33. [Problem Solving 3] *

A 3rd grade maths test included this rather tough challenge. Can you solve it?

```
If   5 * 3 = 4
     2 * 8 = 2
     5 * 1 = 6
and  6 * 3 = 3  find the value of
     1 * 7 = ?
```

[ ]

23 | 24 25 26 | 27 28 | 29 | 30 | 31 32 33

1. [+ Whole Numbers to 10]

	13	16	22	7	24	10	−19	−8	5	21
+ 7										

2. [− Whole Numbers to 10]

	24	7	1	16	23	−9	30	12	−28	15
− 2										

3. [× Whole Numbers to 12]

	8	10	4	9	6	3	11	5	7	12
× 5										

4. [÷ Whole Numbers to 12]

	132	44	55	99	110	33	66	77	121	88
÷ 11										

Name: ....

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

Parent's Signature:

5. [Large Number +,−] *

$45\,672 + 2988 =$

6. [Large Number ×,÷] *

$37\,200 \div 15 =$

7. [Decimal +,−] *

$97.35 - 8.6 =$

8. [Decimal ×,÷] *

$1.03 \times 0.9 =$

9. [Fraction +,−] *

$\dfrac{1}{4} + \dfrac{11}{20} =$

10. [Fraction ×,÷] *

$\dfrac{1}{12} \times \dfrac{2}{9} =$

11. [Percentages] *

120% of $50 =$

12. [Decimals / Fractions / Percents] *

In 2018, New Zealand's average internet speed increased by 16% from the previous year. Write this percentage as a fraction in simplest form.

13. [Integers]

$-5 - (-7) =$

14. [Rates / Ratios] *

Which is the best buy?
A) a 250 g block of chocolate at $4.50
B) a 400 g block of chocolate at $6.00

15. [Exponents / Square Roots]

$5^0 =$

16. [Order of Operations] *

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

17. [Exploring Numbers]

Round 0.0475 to three decimal places.

18. [Multiples / Factors / Primes] *

Express 120 as a product of its prime factors.

$120 =$

19. [Number Patterns]

Complete the pattern:

$-1, -9, -17, -25,$ ___ , ___

20. [Expressions]

Simplify

$ab + ab - bc - ab + bc$

21. [Substitution] *

If $s = 5$,
find the value of

$\dfrac{s^2 - 9}{4}$
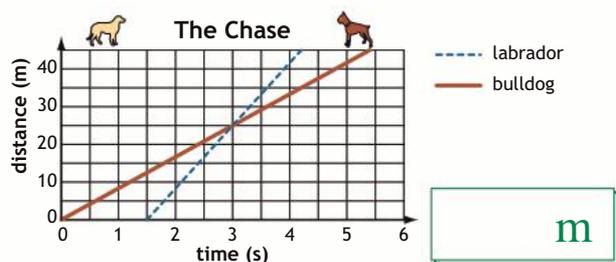
22. [Equations] *

Solve for r:

$18 - r = 12$

$r =$

23. [Rules / Graphs]

A labrador and a bulldog are running after a ball. After how many metres does the labrador overtake the bulldog?

The Chase

distance (m) vs time (s)

- - - - labrador
——— bulldog

[ ] m

24. [Units of Measurement / Time] *

The standard golf ball has a mass of 45 g. How many golf balls are there in a bag weighing 1.8 kg?

[ ]

25. [Perimeter] *

The perimeter of this regular heptagon is 84 mm. What is the length of a side?

? mm

[ ] mm
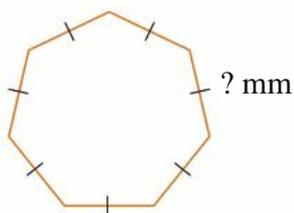
26. [Area / Volume] *

Using $A = \frac{1}{2}ab$ find the area of the rhombus.

22 mm

43 mm

[ ] mm^2

27. [Shapes] *

Find the value of $x°$.

$x°$
30°
$x°$

[ ]
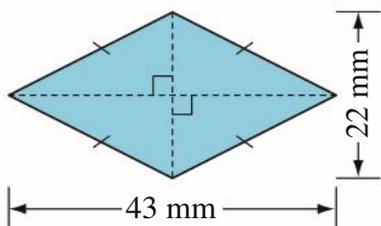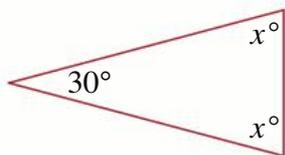
28. [Location / Transformation]

Redraw the shape after halving the coordinates of its vertices.
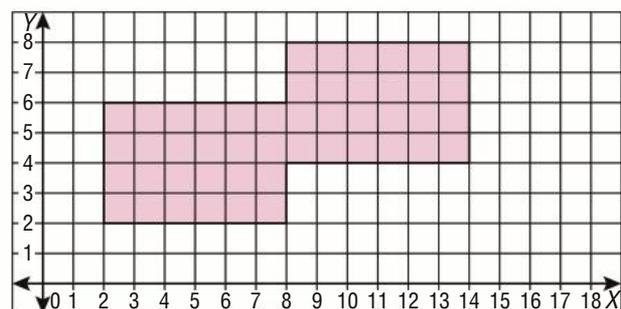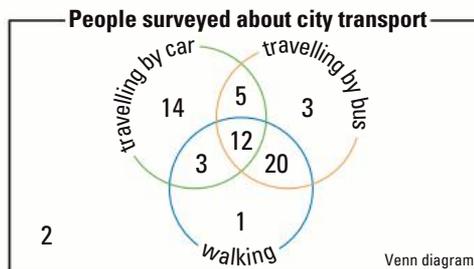
29. [Statistics]

Which fuel contributed a smaller proportion of carbon dioxide (CO_2) emissions in 2017 than in 1973?

World CO$_2$ emissions by fuel

■ coal/peat
■ oil
■ gas

1973   2017

[ ]
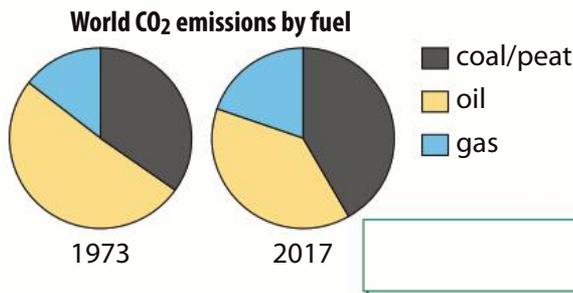
30. [Probability] *

What is the probability that a person chosen at random does not travel by bus? [Give your answer as a fraction in simplest form.]

People surveyed about city transport

travelling by car   travelling by bus

14   5   3
12
3   20
1
2
walking   Venn diagram

[ ]
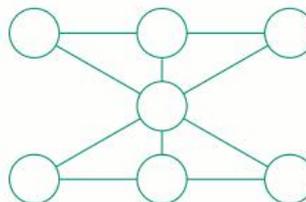
31. [Problem Solving 1] *

If the total area of the shape is 150 cm^2 and all the squares are congruent, find the perimeter of the shape.

[ ] cm

32. [Problem Solving 2] *

Place the numbers 1 to 7 in the circles so that the sum of each row (horizontal, vertical and diagonal) is 12.

33. [Problem Solving 3] *

A maths test has two problems. The first was solved by 70% of the students. The second was solved by 60%. Every student solved at least one of the problems. Nine students solved both problems. How many students took the test?

[ ]

23 24 25 26 27 28 29 30 31 32 33

MATHS MATE

GREEN

Worksheet Results

Name: ....

Class: ....

Teacher: ....

Term 4

		Sheet 1	Sheet 2	Sheet 3	Sheet 4	Skill Builder links	Sheet 5	Sheet 6	Sheet 7	Sheet 8	Skill Builder links
NUMBER	1. [+ Whole Numbers to 10]	1	1	1	1	1.1,2	1	1	1	1	1.1,2
	2. [– Whole Numbers to 10]	2	2	2	2	2.1,2	2	2	2	2	2.1,2
	3. [× Whole Numbers to 12]	3	3	3	3	3.1,2	3	3	3	3	3.1,2
	4. [÷ Whole Numbers to 12]	4	4	4	4	4.1,2	4	4	4	4	4.1,2
	5. [Large Number +,–]	5	5	5	5	5.5	5	5	5	5	5.5
	6. [Large Number ×,÷]	6	6	6	6	6.9	6	6	6	6	6.10
	7. [Decimal +,–]	7	7	7	7	7.1	7	7	7	7	7.3
	8. [Decimal ×,÷]	8	8	8	8	8.5	8	8	8	8	8.7
	9. [Fraction +,–]	9	9	9	9	9.7,9	9	9	9	9	9.4
	10. [Fraction ×,÷]	10	10	10	10	10.6	10	10	10	10	10.4
	11. [Percentages]	11	11	11	11	11.7	11	11	11	11	11.8
	12. [Decimals / Fractions / Percentages]	12	12	12	12	12.12	12	12	12	12	12.13
	13. [Integers]	13	13	13	13	13.9	13	13	13	13	13.10
	14. [Rates / Ratios]	14	14	14	14	14.8	14	14	14	14	14.9
	15. [Exponents / Square Roots]	15	15	15	15	15.6	15	15	15	15	15.7
	16. [Order of Operations]	16	16	16	16	16.6	16	16	16	16	16.7
	17. [Exploring Numbers]	17	17	17	17	17.9	17	17	17	17	17.10
	18. [Multiples / Factors / Primes]	18	18	18	18	18.10	18	18	18	18	18.4
	19. [Number Patterns]	19	19	19	19	19.10	19	19	19	19	19.11
ALGEBRA	20. [Expressions]	20	20	20	20	20.5	20	20	20	20	20.5
	21. [Substitution]	21	21	21	21	21.10	21	21	21	21	21.11
	22. [Equations]	22	22	22	22	22.7	22	22	22	22	22.8
	23. [Rules / Graphs]	23	23	23	23	23.9	23	23	23	23	23.10
MEASURMENT	24. [Units of Measurement / Time]	24	24	24	24	24.6	24	24	24	24	24.7
	25. [Perimeter]	25	25	25	25	25.7	25	25	25	25	25.8
	26. [Area / Volume]	26	26	26	26	26.10	26	26	26	26	26.11
SPACE	27. [Shapes]	27	27	27	27	27.10,11,12	27	27	27	27	27.13
	28. [Location / Transformation]	28	28	28	28	28.7	28	28	28	28	28.8,9
STAT.	29. [Statistics]	29	29	29	29	29.10	29	29	29	29	29.11
PROB.	30. [Probability]	30	30	30	30	30.8,9	30	30	30	30	30.10
PROBLEM SOLVING	31. [Problem Solving 1]	31	31	31	31	Hints & Solutions	31	31	31	31	Hints & Solutions
	32. [Problem Solving 2]	32	32	32	32	Hints & Solutions	32	32	32	32	Hints & Solutions
	33. [Problem Solving 3]	33	33	33	33	Hints & Solutions	33	33	33	33	Hints & Solutions
	Total Correct										

1. [+ Whole Numbers to 10]

+ 8	9	−24	8	26	13	7	11	2	10	−15

2. [− Whole Numbers to 10]

− 6	14	1	25	12	−9	7	30	13	8	−26

3. [× Whole Numbers to 12]

× 4	7	11	5	3	6	−4	9	12	10	8

4. [÷ Whole Numbers to 12]

÷ 9	36	54	81	108	63	72	45	−27	9	90

5. [Large Number +,−] *

$923 + 405 + 312 =$

6. [Large Number ×,÷] *

$142 \times 120 =$

7. [Decimal +,−] *

$37.85 + 5 + 0.9 =$

8. [Decimal ×,÷] *

$0.06 \div 0.2 =$

9. [Fraction +,−] *

$\dfrac{4}{5} - \dfrac{1}{3} =$

10. [Fraction ×,÷] *

$\dfrac{1}{9} \div \dfrac{4}{5} =$

11. [Percentages] *

Write as a percentage:
5 out of 25.

12. [Decimals / Fractions / Percents]

Complete the table:

Decimal	Fraction	Percent
0.03		

13. [Integers]

$8 \times (−9) =$

14. [Rates / Ratios] *

Lightning reaches a temperature four times greater than the sun's surface. Find the ratio of the sun's surface temperature to lightning temperature.

$\boxed{\quad : \quad}$

15. [Exponents / Square Roots] *

Between which two consecutive whole numbers does $\sqrt{7}$ lie?

$\boxed{\quad}$ and $\boxed{\quad}$

16. [Order of Operations] *

$−3 \times 4 + 2^3 \times 2 =$

17. [Exploring Numbers]

Choose the whole numbers from this list:
$−16, 43, \dfrac{5}{7}, −0.97, 200$

18. [Multiples / Factors / Primes] *

Express 27 as a product of its prime factors using exponential notation.

$27 =$

19. [Number Patterns] *

Find the 13th term in the pattern:
$18, 17, 16, 15, 14, ...$

20. [Expressions]

Simplify
$2s + s + 4t − t$

21. [Substitution] *

If $j = 6$,
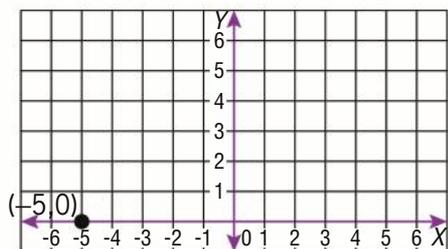find the value of
$2(3 + j)$

22. [Equations] *

Solve for y:
$3 \times y = 21$

$y =$

23. [Rules / Graphs]

Using the table of values, plot the points on the Cartesian plane.

[Hint: The first one has been done for you.]

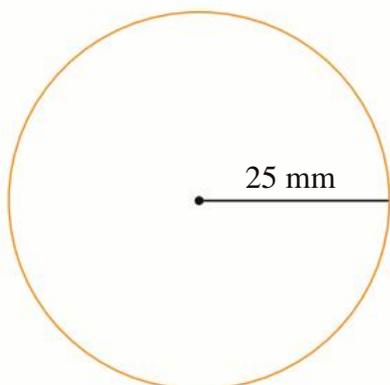| x	−5	−3	−1	1	3	5
y	0	1	2	3	4	5

(−5, 0)

24. [Units of Measurement / Time] *

Find the time in hours and minutes between 12:20 and 23:00 the same day.
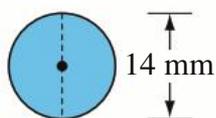
[　　h　　min]

25. [Perimeter] *

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

25 mm

[　　mm]

26. [Area / Volume] *

Using $A = \pi r^2$ and $\pi \approx \dfrac{22}{7}$, find the area of the circle.

14 mm

[　　mm^2]

27. [Shapes] *

Find the values of $x°$ and $y°$.

80° $x°$
45° $y°$
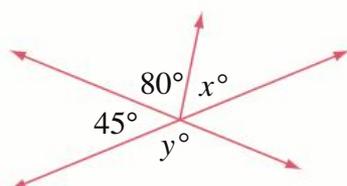
[$x° =$ 　　 $y° =$]

28. [Location / Transformation]

Redraw this triangle after subtracting 3 units from the x-coordinates and 6 units from the y-coordinates of its vertices.
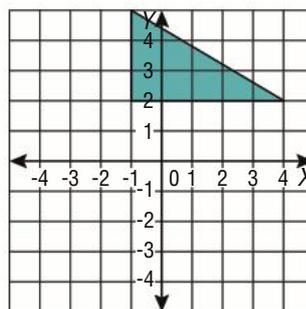
29. [Statistics]

Complete the stem-and-leaf plot for the data showing the results of the men's high jump at the 1956 - 2016 Olympics:

212, 216, 218, 224, 223, 225, 236, 235, 238, 234, 239, 235, 236, 236, 238, 238

Stem	Leaf
21	2 _ _ _
_	_ | _ _ _
_	_ _ _ _ _ _

Key
23| 7 = 237 cm

30. [Probability] *

Ten balls numbered 1 to 10 are mixed together, and then one ball is drawn. Find the probability that the number drawn is not a multiple of 3.

[Give your answer as a fraction.]

31. [Problem Solving 1] *

At a convention for lawyers it was known that of the 100 present, at least one was dishonest, yet if you met any two of the lawyers, you could guarantee that at least one of the two would be honest. How many dishonest lawyers were present?

32. [Problem Solving 2] *

What single discount is successive discounts of 30% and 50% equivalent to?

33. [Problem Solving 3] *

Students in a maths test can score 0, 1, 2 or 3 marks on each of the six questions. There is only one way to score 18 and six ways to score 17. In how many ways can a student score 16?

23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33

1. [+ Whole Numbers to 10]

+ 9	21	3	−10	2	19	−6	−27	14	8	15

2. [− Whole Numbers to 10]

− 8	16	−19	12	28	−7	33	10	−15	4	21

3. [× Whole Numbers to 12]

× 12	9	5	12	6	3	10	11	8	7	−4

4. [÷ Whole Numbers to 12]

÷ 4	44	24	8	40	−16	28	12	36	−32	20

Name: ....

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

Parent's Signature:

QUOTE OF THE WEEK

Selfishness is a gift of nature. Unselfishness is an accomplishment.
Joseph Mayer

5. [Large Number +,−] *

$234 + 1409 + 56 + 138 =$

6. [Large Number ×,÷] *

$324 \times 260 =$

7. [Decimal +,−] *

$42.19 + 1.3 + 0.58 =$

8. [Decimal ×,÷] *

$1.5 \div 0.03 =$

9. [Fraction +,−] *

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

10. [Fraction ×,÷] *

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

11. [Percentages] *

At the 2016 Rio Olympics, 2 of the 10 medals won by Croatia were bronze. What percentage is this?

12. [Decimals / Fractions / Percents] *

Complete the table:

Decimal	Fraction	Percent
	$\dfrac{1}{5}$	

13. [Integers]

$-6 \times (-6) =$

14. [Rates / Ratios] *

A cricket pitch is approximately 21 m long and 3 m wide. Find the ratio of length to width.

:

15. [Exponents / Square Roots] *

Between which two consecutive whole numbers does $\sqrt{10}$ lie?

and

16. [Order of Operations] *

$(-4 - 1)^2 \times 4 \div 1 =$

17. [Exploring Numbers]

Choose the integers from this list:
$\dfrac{15}{10}, 63, -2, 1968, 3.14$

18. [Multiples / Factors / Primes] *

Express 80 as a product of its prime factors using exponential notation.

$80 =$

19. [Number Patterns] *

Find the 15th term in the pattern:

$3, 13, 23, 33, 43, ...$

20. [Expressions]

Simplify
$5v + 2v - v + 3w$

21. [Substitution] *
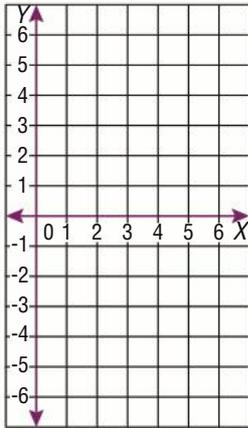
If $k = 9$,
find the value of
$3(k - 8)$

22. [Equations] *

Solve for f:
$5f = 20$

$f =$

23. [Rules / Graphs]

Using the table of values, plot the points on the Cartesian plane.

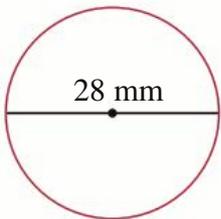| x	1	2	3	4	5	6
y	−6	−4	−2	0	2	4

24. [Units of Measurement / Time] *

The movie begins at 6:40 pm and ends at 8:30 pm. How long is the movie in hours and minutes?
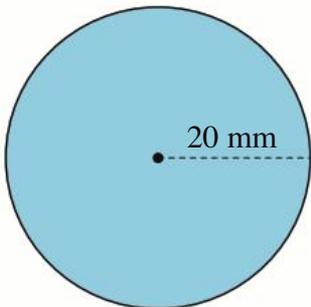
h	min

25. [Perimeter] *

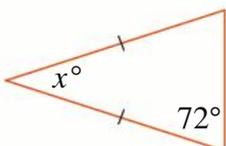Using $C = 2\pi r$ where $\pi \approx \dfrac{22}{7}$, calculate the circumference of the circle.

28 mm

mm

26. [Area / Volume] *

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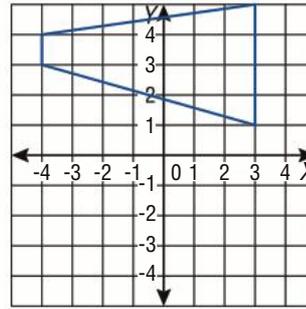
20 mm

mm^2

27. [Shapes] *

Find the value of $x°$.

$x°$

72°

28. [Location / Transformation]

Redraw this trapezium after reflecting it in the x-axis.

29. [Statistics] *

This stem-and-leaf plot shows the number of annual vacation days for the twelve largest countries in the world. Find the median of the data.

Stem	Leaf
1	3 5
2	0 0 5 5 7 8
3	4 5 7
4	2

$1 | 0 = 10$

30. [Probability] *

A survey of a local suburb showed that 15% of the population was under 12 years old, and 21% of the population was over 60 years. What is the probability that a person selected at random was aged between 12 and 60 years? [Give your answer as a percentage.]

31. [Problem Solving 1] *

John asked Miriam to tell him her age. She replied, "If you divide my age by 3, you will get the same answer as when you divide 75 by my age." How old is Miriam?

32. [Problem Solving 2] *

At noon, Trevor and Kim start running from the same point. Trevor runs east at a speed of 8 km/h and Kim runs west at a speed of 6 km/h. At what time will they be 21 km apart?

33. [Problem Solving 3] *

Each letter represents a different digit. If GOD = 605, what number does MOVED represent?

```
    A D A M
      A N D
  +   E V E
  M O V E D
```

1. [+ Whole Numbers to 10]

	–8	12	15	–24	9	7	3	10	–11	26
+ 6										

2. [– Whole Numbers to 10]

	26	4	17	3	–10	31	9	12	15	–18
– 7										

3. [× Whole Numbers to 12]

	9	6	12	8	4	11	–5	3	10	7
× 9										

4. [÷ Whole Numbers to 12]

	40	20	80	110	50	90	60	70	–30	120
÷ 10										

5. [Large Number +,–] *

$4539 + 216 + 541 =$

6. [Large Number ×,÷] *

$107 \times 3800 =$

7. [Decimal +,–] *

$22.31 + 4.9 + 0.248 =$

8. [Decimal ×,÷] *

$0.36 \div 0.6 =$

9. [Fraction +,–] *

$\dfrac{3}{7} + \dfrac{1}{2} =$

10. [Fraction ×,÷] *

$\dfrac{1}{2} \div \dfrac{3}{8} =$

11. [Percentages] *

An elephant weighs 5000 kg. It eats 150 kg of food each day. What percentage of its own weight does an elephant eat each day?

12. [Decimals / Fractions / Percents] *

Complete the table:

Decimal	Fraction	Percent
		80%

13. [Integers]

$-5 \times 7 =$

14. [Rates / Ratios] *

Rainforests represent 6% of the land on earth, and contain half of all living things. Find the ratio of rainforests to other habitats.

:

15. [Exponents / Square Roots] *

Between which two consecutive whole numbers does $\sqrt{35}$ lie?

and

16. [Order of Operations] *

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

17. [Exploring Numbers]

Choose the integers from this list:

$\dfrac{3}{6}$, 5.2, 10, –4, 197

18. [Multiples / Factors / Primes] *

Express 132 as a product of its prime factors using exponential notation.

$132 =$

19. [Number Patterns] *

Find the 10th term in the pattern:

$1, 8, 27, 64, ...$

20. [Expressions]

Simplify
$2m + 3p - p + m$
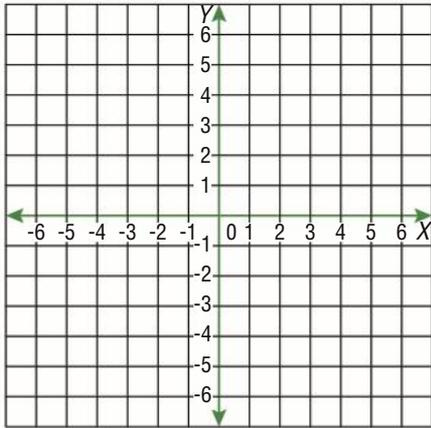
21. [Substitution] *

If $p = 7$,
find the value of
$p(2 + p)$

22. [Equations] *

Solve for p:
$8p = -64$

$p =$

23. [Rules / Graphs]

Using the table of values, plot the points on the Cartesian plane.

x	−6	−4	−2	0	2	4
y	5	3	1	−1	−3	−5

24. [Units of Measurement / Time] *

The interview began at 13:30 and ended at 14:50. How long was the interview in hours and minutes?
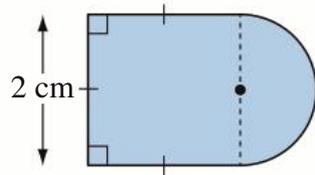
h	min

25. [Perimeter] *

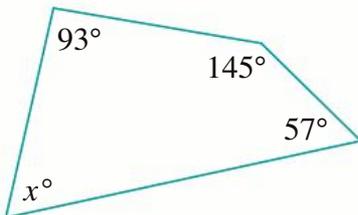Using $\pi \approx \dfrac{22}{7}$ calculate the circumference of the top of the stool.

21 cm

cm

26. [Area / Volume] *

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

2 cm

cm^2

27. [Shapes] *

Find the value of $x°$.

93°

145°

57°

$x°$

28. [Location / Transformation]

Redraw this shape after rotating it 90° clockwise about the point of coordinates (6,4).
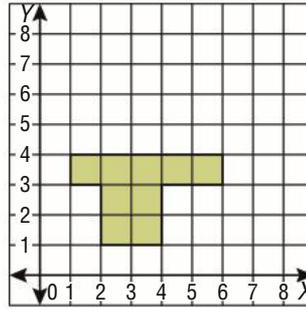
29. [Statistics] *

This stem-and-leaf plot shows the mean annual rainfall for Queenstown, New Zealand. Find the median of the data.

Stem	Leaf
5	8
6	5 9
7	2 3 5 7 8
8	0 2 9
9	5

$7|0 = 70\ mm$

30. [Probability] *

When a die is rolled, what is the probability of rolling a 2 or a 5?
[Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

Place the digits 2, 3, 4, 6 and 8 in the circles so the three numbers on each line give the same product, and the product is as small as possible.
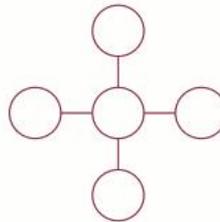
32. [Problem Solving 2] *

In how many ways can 12 one-dollar coins be shared between Josh, Frank and Suzie, if each of them receives at least 3 coins?

33. [Problem Solving 3] *

Sandra walked to the top of a hill at a speed of 2 km/h, turned around and walked down the hill at a rate of 4 km/h. The whole trip took 6 hours. How many kilometres is it to the top of the hill?

km

1. [+ Whole Numbers to 10]

		31	10	−18	24	19	2	−3	17	15	6
+ 4											

2. [− Whole Numbers to 10]

		21	−27	4	30	5	19	12	−8	16	3
− 3											

3. [× Whole Numbers to 12]

		5	9	−8	6	3	7	11	−4	12	10
× 8											

4. [÷ Whole Numbers to 12]

		60	45	40	50	25	35	−55	20	15	−30
÷ 5											

5. [Large Number +,−] *

$5378 + 1948 + 366 =$

6. [Large Number ×,÷] *

$209 \times 1500 =$

7. [Decimal +,−] *

$4.5 + 27 + 2.503 =$

8. [Decimal ×,÷] *

$2.8 \div 0.07 =$

9. [Fraction +,−] *

$\dfrac{5}{12} - \dfrac{2}{5} =$

10. [Fraction ×,÷] *

$\dfrac{3}{10} \div \dfrac{2}{5} =$

11. [Percentages] *

Of the approximately 225 species of shark, 18 are dangerous to humans. What percentage is this?

12. [Decimals / Fractions / Percents] *

Complete the table:

Decimal	Fraction	Percent
	$\dfrac{47}{50}$	

13. [Integers]

$-3 \times (-9) =$

14. [Rates / Ratios] *

In Australia the size of a typical home has increased from 220 m^2 to 245 m^2 over the past 10 years. Find the ratio of house area today compared to 10 years ago.

[ ] : [ ]

15. [Exponents / Square Roots] *

Between which two consecutive whole numbers does $\sqrt{50}$ lie?

and

16. [Order of Operations] *

$1 + (-2)^3 \div (-5 + 4) =$

17. [Exploring Numbers]

Choose the integers from this list:
$\dfrac{12}{3}, 1850, 4.5, -17, 0.1$

18. [Multiples / Factors / Primes] *

Express 300 as a product of its prime factors using exponential notation.

$300 =$

19. [Number Patterns] *

Find the 20th term in the pattern:

$\dfrac{1}{20}, \dfrac{1}{19}, \dfrac{1}{18}, \dfrac{1}{17}, ...$

20. [Expressions]

Simplify
$4q + 3 + q - 2$

21. [Substitution] *

If $e = -8$,
find the value of
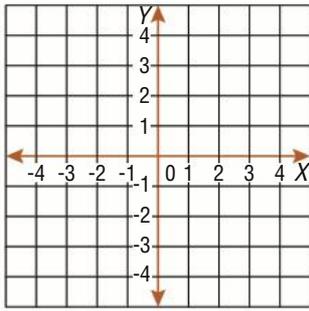$3(e - 1)$

22. [Equations] *

Solve for x:
$\dfrac{x}{10} = 2$

$x =$

23. [Rules / Graphs]

Using the table of values, plot the points on the Cartesian plane.

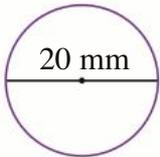| x	−2	−1	0	1	2	3
y	−4	−3	−2	−1	0	1

24. [Units of Measurement / Time] *

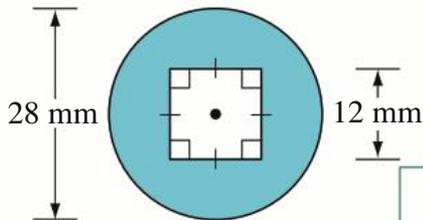School starts at 8:55 am and ends at 2:45 pm. How long is a school day in hours and minutes?

h   min

25. [Perimeter] *

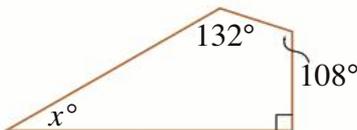Using $\pi \approx 3.14$ calculate the circumference of the circle.

20 mm

mm

26. [Area / Volume] *

Using $\pi \approx \dfrac{22}{7}$ find the shaded area.
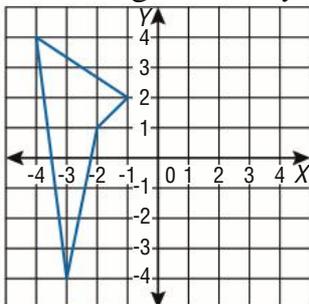
28 mm   12 mm

mm^2

27. [Shapes] *

Find the value of $x°$.

132°
108°
$x°$

28. [Location / Transformation]

Redraw this quadrilateral after reflecting it in the y-axis.

29. [Statistics] *

This stem-and-leaf plot shows the number of floors of the twenty tallest buildings in the world. Find the median and range of the data.

Stem	Leaf
10	1 1 1 1 1 2 3 4 5 6 8
11	0 1 5 7 8
12	0 3 8
16	3

$4|3 = 43$

median =   range =
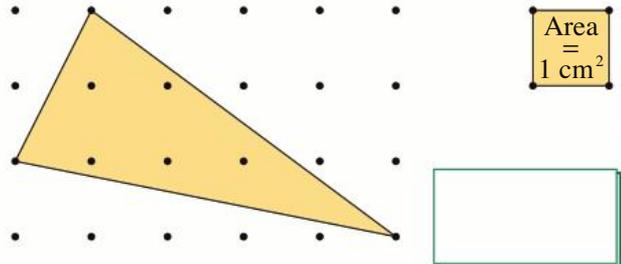
30. [Probability] *

A bag contains 6 white, 2 black and 10 green marbles. If a marble is selected at random, find the probability that it is a black or a green marble.
[Give your answer as a fraction in simplest form.]

31. [Problem Solving 1] *

What is the area of the triangle in square centimetres?

Area = 1 cm^2

32. [Problem Solving 2] *

A maths test consists of ten questions. Ten points are given for each correct answer, and three points are deducted for each incorrect answer. If Sue attempted all the questions and scored 61 points, how many correct answers did she give?

33. [Problem Solving 3] *

On Monday, the escalator was not working. It took Tom 18 seconds to reach the top, climbing two steps each second. By Tuesday the escalator had been repaired and Tom took only 12 seconds to reach the top climbing at the same rate. On Wednesday Tom decided to ride the escalator without climbing at all. How long did it take to reach the top this time?

s

Name: ....

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

Parent's Signature:

1. [+ Whole Numbers to 10]

+ 5	23	14	−1	10	−9	2	16	8	−15	7

2. [− Whole Numbers to 10]

− 9	6	17	19	24	10	2	−15	21	−3	28

3. [× Whole Numbers to 12]

× 6	−3	8	7	−11	6	9	4	12	5	10

4. [÷ Whole Numbers to 12]

÷ 7	49	−70	28	42	7	63	84	35	−56	21

5. [Large Number +,−] *

$74 + 2092 − 777 =$

6. [Large Number ×,÷] *

$3477 ÷ 2 =$

7. [Decimal +,−] *

$8 − 0.7 =$

8. [Decimal ×,÷] *

$2 ÷ 0.4 =$

9. [Fraction +,−] *

$5\frac{5}{9} − 3\frac{2}{9} =$

**10.** [Fraction ×,÷] *

$\frac{3}{2} × \frac{2}{9} =$

11. [Percentages] *

Roger made $25 profit on the stamp collection costing him $125. What was his profit as a percentage of the cost price?

12. [Decimals / Fractions / Percents] *

Which is greater?

$\frac{3}{10}$ or 3%

13. [Integers]

$48 ÷ (−8) =$

14. [Rates / Ratios] *

A honey bee has wings that can beat 250 times per second. At this rate how many beats are recorded in a minute?

beats/min

15. [Exponents / Square Roots] *

$(−8)^2 =$

16. [Order of Operations] *

$\sqrt{36 + 64} =$

17. [Exploring Numbers]

Which numbers are rational?

A) −3   B) $\frac{7}{8}$

C) $\sqrt{18}$ D) π

and

18. [Multiples / Factors / Primes] *

The number 9 has exactly three factors: 1, 3 and 9. Find the next number after 9 that has exactly three factors.

19. [Number Patterns] *

If the general rule of a pattern is $n + 2$ find the 15th term ($n = 15$).

20. [Expressions]

Simplify
$4x + 9 − 2x − 6$

21. [Substitution] *

If $a = 5$ and $b = 2$, find the value of $a(a + b)$

22. [Equations] *

Solve for x:
$2x + 3 = 9$

$x =$

23. [Rules / Graphs] *

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

[Label the line with the equation.]

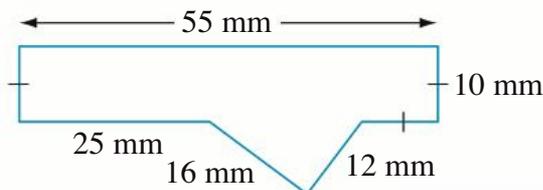| x	-3	-2	-1	0	1
y	0				
(x,y)	$(-3,0)$	(,)	(,)	(,)	(,)
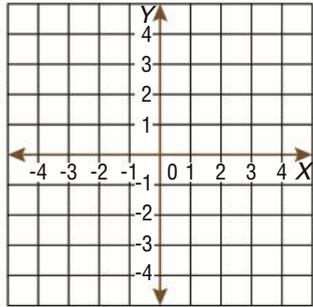
24. [Units of Measurement / Time] *

It is Monday, 0250 hours in Vancouver, Canada, and Monday, 2050 hours in Melbourne. By how many hours is Vancouver time behind Melbourne time?
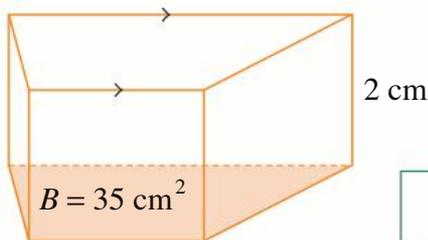
h

25. [Perimeter] *

Calculate the perimeter of the polygon.

55 mm
10 mm
25 mm
16 mm
12 mm

mm

26. [Area / Volume] *

Using Volume = area of base × height, find the volume of the prism.

2 cm

$B = 35$ cm^2

cm^3

27. [Shapes]

Match each diagram to its description:
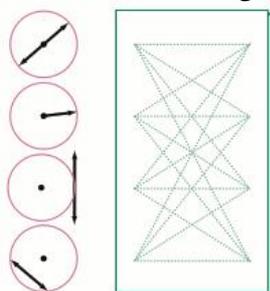
chord

tangent

radius

diameter

28. [Location / Transformation]

Which transformation has moved triangle DEF?

A) a translation of -2 along the x-axis
B) a reflection in the line $x = -2$
C) a rotation of 90º clockwise
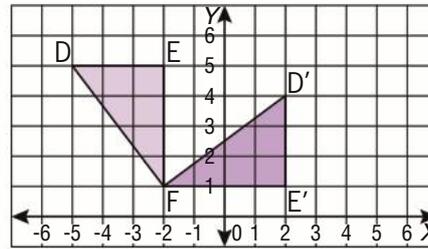
29. [Statistics]

How many Oscars have been won by actresses aged 50 or more?

Best Actress Oscar winners by age at win (2019)
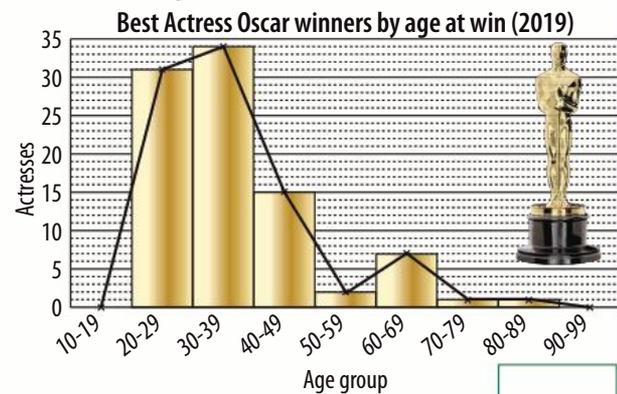
30. [Probability] *

In how many ways can five books be arranged on a shelf?

31. [Problem Solving 1] *

A gardener wants to fence the largest possible rectangular area using 200 metres of fencing. Find the best length and width of the garden.

m × m

32. [Problem Solving 2] *

Michelle has $14 in her purse in 5¢, 10¢ and 20¢ coins. If she has an equal number of each coin type, how many coins does Michelle have in her purse?

33. [Problem Solving 3] *

Using my tap, it takes 6 minutes to fill our water tank. Using the neighbour's hose, it takes 9 minutes. How long would it take if I used both the tap and the hose?

min s

1. [+ Whole Numbers to 10]

	−9	14	13	−17	18	−1	12	6	15	0
+ 7										

2. [− Whole Numbers to 10]

	25	14	−9	18	27	22	3	10	−21	26
− 6										

3. [× Whole Numbers to 12]

	3	10	11	5	8	−6	12	9	4	7
× 8										

4. [÷ Whole Numbers to 12]

	24	108	84	−48	132	120	−36	72	60	96
÷ 12										

5. [Large Number +,−] *

$527 + 8473 − 583 =$

6. [Large Number ×,÷] *

$1042 ÷ 5 =$

7. [Decimal +,−] *

$2 − 0.64 =$

8. [Decimal ×,÷] *

$7 ÷ 0.2 =$

9. [Fraction +,−] *

$2\frac{1}{4} − \frac{3}{4} =$

10. [Fraction ×,÷] *

$\frac{2}{3} × \frac{3}{8} =$

11. [Percentages] *

Tina bought her car for $6000 and later sold it for $4500. Find the loss as a percentage of the cost price.

12. [Decimals / Fractions / Percents] *

Which is greater?

0.8 or $\frac{3}{4}$

13. [Integers]

$99 ÷ (−11) =$

14. [Rates / Ratios] *

It takes 3 minutes to fill a 60 L bathing pool. What is the average rate in litres per hour?

L/h

15. [Exponents / Square Roots] *

$(−4)^3 =$

16. [Order of Operations] *

$\sqrt{5^2 + 12^2} =$

17. [Exploring Numbers]

Which is **not** a rational number?

A) 1.4143 B) $\frac{7}{6}$

C) $\sqrt{7}$ D) $−28$

18. [Multiples / Factors / Primes] *

The number 10 has exactly four factors: 1, 2, 5 and 10. Find the next number after 10 that has exactly four factors.

19. [Number Patterns] *

If the general rule of a pattern is $n − 7$ find the 22nd term ($n = 22$).

20. [Expressions]

Simplify
$8a + 7 − 3a + 2$

21. [Substitution] *

If $x = 10$ and $y = 7$, find the value of $2x(x − y)$

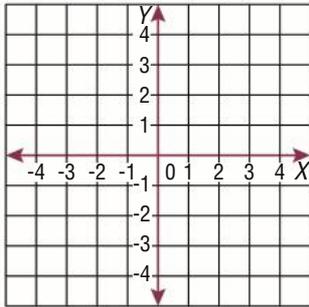**22.** [Equations] *

Solve for s:
$4s − 5 = 11$

$s =$

23. [Rules / Graphs] *

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

[Label the line with the equation.]

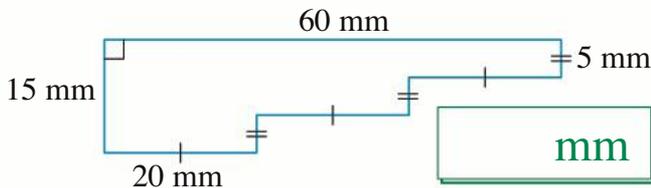| x	-2	-1	0	1	2
y	3				
(x,y)	$(-2,3)$	$(\ ,\ )$	$(\ ,\ )$	$(\ ,\ )$	$(\ ,\ )$

24. [Units of Measurement / Time] *

The rugby game starts at 1:30 pm in Auckland. If Chatham Island time is 45 minutes ahead of Auckland time, when should you turn on your TV on Chatham Island to catch the start of the game?
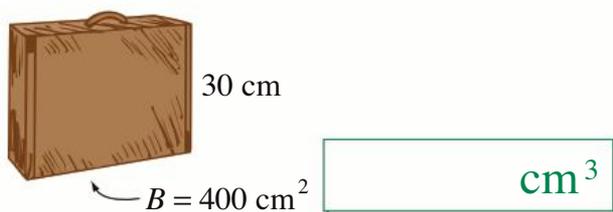
25. [Perimeter] *

Calculate the perimeter of the polygon.

60 mm
5 mm
15 mm
20 mm

mm

26. [Area / Volume] *
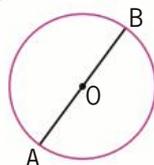
Using $V = Bh$ find the volume of the briefcase.

30 cm

$B = 400$ cm^2

cm^3

27. [Shapes]

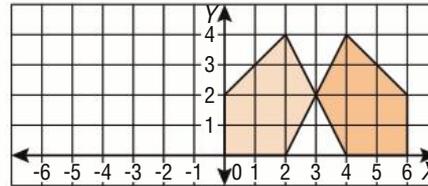What is $\overline{AB}$ in this diagram?

A) radius
B) circumference
C) diameter
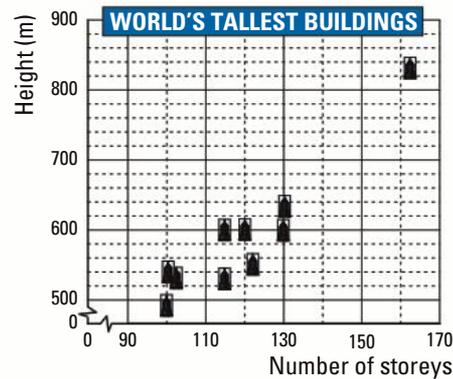D) tangent

B
O
A

28. [Location / Transformation]

Which transformation has moved the shape?

A) a translation of 2 along the x-axis
B) a reflection in the line $x = 3$
C) a rotation of 180º

29. [Statistics]

How many of the buildings in this graph have 120 or more storeys?

WORLD'S TALLEST BUILDINGS
Height (m)
900
800
700
600
500
0
0   90   110   130   150   170
Number of storeys

30. [Probability] *

A deli has a lunch menu consisting of one sandwich, one dessert and one drink. How many lunch combinations are possible from these choices?

drink: tea, coffee, lemonade, water
sandwich: salad, ham, tuna, roast beef
dessert: pavlova, fruit

31. [Problem Solving 1] *

I think of a number, multiply it by 2, subtract 6 and then divide by 4. If the answer is 8, what is the original number?

32. [Problem Solving 2] *

The fraction of girls in our class has risen from $\frac{3}{7}$ to $\frac{1}{2}$ with the arrival of the Henderson triplet girls. How many students are there in our class now?

33. [Problem Solving 3] *

A clock gains 4 minutes every hour. One day it is set to the correct time, 9:00 am. What is the correct time when the clock shows 1:00 pm that afternoon?

1. [+ Whole Numbers to 10]

	13	6	−7	−22	9	21	18	−15	10	4
+ 9										

2. [− Whole Numbers to 10]

	−10	11	9	17	−8	12	26	13	25	4
− 5										

3. [× Whole Numbers to 12]

	9	3	12	−7	11	6	10	8	−4	5
× 7										

4. [÷ Whole Numbers to 12]

	96	24	56	80	−48	64	40	88	−32	72
÷ 8										

5. [Large Number +,−] *

$849 + 3175 − 888 =$

6. [Large Number ×,÷] *

$3137 ÷ 4 =$

7. [Decimal +,−] *

$12 − 9.63 =$

8. [Decimal ×,÷] *

$9 ÷ 0.03 =$

9. [Fraction +,−] *

$2\dfrac{3}{8} − \dfrac{5}{8} =$

10. [Fraction ×,÷] *

$\dfrac{9}{10} × \dfrac{2}{3} =$

11. [Percentages] *

Aaron bought a motor home for $50 000. If he later sold it for $10 000, find the loss as a percentage of the cost price.

12. [Decimals / Fractions / Percents] *

Which is greater?
40% or 0.04

13. [Integers]

$−24 ÷ (−6) =$

14. [Rates / Ratios] *

The average heartbeat rate for persons 12 to 16 years old is 80 beats per minute at rest. At this rate how many times is the heart beating in two and a half hours?

15. [Exponents / Square Roots] *

$(−12)^2 =$

16. [Order of Operations] *

$50 − 2^3 × \sqrt{36} =$

17. [Exploring Numbers]

Choose the rational numbers from the list:
$\dfrac{14}{28}, \sqrt{3}, 0.6341, 15, π$

18. [Multiples / Factors / Primes] *

What is the smallest positive integer that has exactly eight factors?

19. [Number Patterns] *

If the general rule of a pattern is $33 − 3n$ find the 8th term ($n = 8$).

20. [Expressions]

Simplify
$5t + 3u − 4t + u$

21. [Substitution] *

If $p = 6$ and $q = 5$, find the value of
$p^2 + pq$

22. [Equations] *

Solve for q:
$3q − 1 = −10$ $q =$
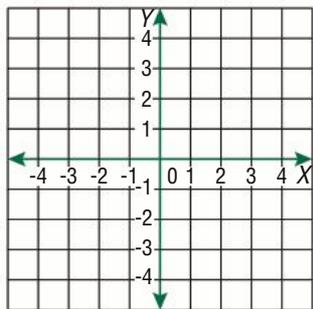
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

23. [Rules / Graphs] *

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

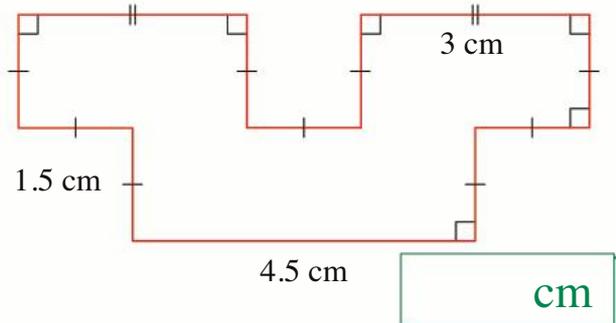| x	-2	-1	0	1	2
y	-5				
(x,y)	$(-2,-5)$	(,)	(,)	(,)	(,)

24. [Units of Measurement / Time] *

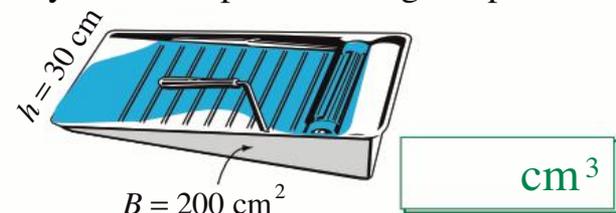At 4:00 am on Christmas Day, 1974 the eye of Cyclone Tracy was directly over Darwin. If Perth time is 1.5 hours behind Darwin time, what was the time in Perth?

25. [Perimeter] *

Calculate the perimeter of the polygon.

3 cm

1.5 cm

4.5 cm

cm
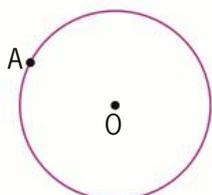
26. [Area / Volume] *

Using $V = Bh$ find the volume of the tray in the shape of a triangular prism.

$h = 30$ cm

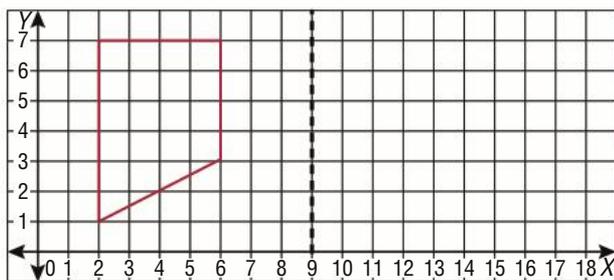$B = 200$ cm^2

cm^3

27. [Shapes]

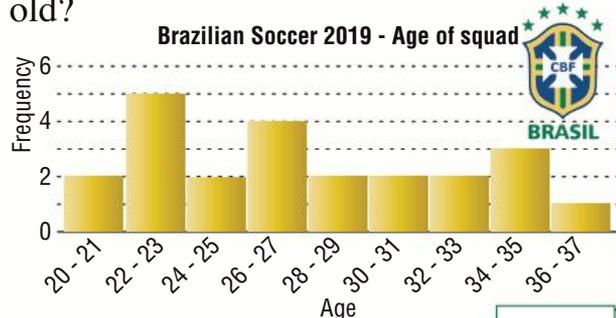Draw the diameter passing through A.

A

O

28. [Location / Transformation]

Redraw this trapezium after reflecting it in the line of equation $x = 9$

29. [Statistics]

How many soccer players in 2019 in the Brazilian squad were less than 26 years old?

Brazilian Soccer 2019 - Age of squad

30. [Probability] *

A one-dollar coin, a two-dollar coin and a six-sided die are tossed. How many results are possible?

31. [Problem Solving 1] *

How many digits are written when 1000^{2015} is expressed as a numeral?

32. [Problem Solving 2] *

A computer is programmed to scan the digits of the counting numbers. For example, if it scans

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

then it has scanned 17 digits altogether. If the computer begins its task and scans the first 1392 digits starting with 1, what is the last counting number scanned?

33. [Problem Solving 3] *

Eight soccer teams play each other once during a tournament. Two points are awarded for each win, one for each draw and zero for each loss. How many points must a team score to be sure that it will finish in the top four?
[The team must finish with more points than at least four other teams.]

1. [+ Whole Numbers to 10]

+ 8	14	−16	−12	10	7	1	−18	3	19	5

2. [− Whole Numbers to 10]

− 7	24	12	16	−17	11	20	3	15	−19	8

3. [× Whole Numbers to 12]

× 5	9	8	5	−3	11	6	7	10	−4	12

4. [÷ Whole Numbers to 12]

÷ 6	18	66	48	36	−72	30	54	−24	42	60

5. [Large Number +,−] *

$2000 + 50\,000 − 14\,973 =$

6. [Large Number ×,÷] *

$1724 ÷ 8 =$

7. [Decimal +,−] *

$5 − 3.841 =$

8. [Decimal ×,÷] *

$6 ÷ 0.8 =$

9. [Fraction +,−] *

$3\dfrac{1}{10} − 1\dfrac{3}{10} =$

10. [Fraction ×,÷] *

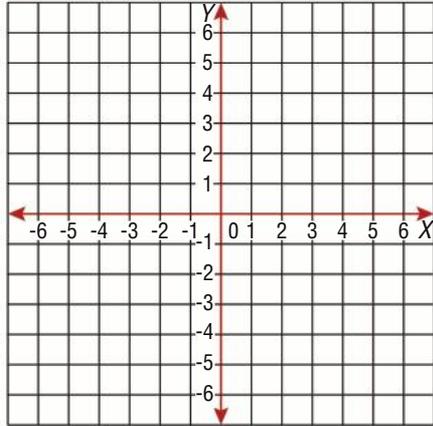$\dfrac{5}{18} × \dfrac{9}{10} =$

11. [Percentages] *

An antique vase was bought for $80 and was later sold for $240. Find the profit as a percentage of the cost price.

12. [Decimals / Fractions / Percents] *

Which is greater?

$\dfrac{2}{3}$ or 60%

13. [Integers]

$−64 ÷ 8 =$

14. [Rates / Ratios] *

A Ferrari with a 5.5 L engine has a city consumption of 23 litres of fuel per 100 km. How much fuel does it need for a 20 km city trip?

L

15. [Exponents / Square Roots] *

$(−2)^5 =$

16. [Order of Operations] *

$\sqrt{16} − 3 × 4 + 3^3 =$

17. [Exploring Numbers]

Choose the rational numbers from the list:

$\dfrac{24}{299}, −6.78, 40, \sqrt{7}, −9$

18. [Multiples / Factors / Primes] *

List the 3 smallest positive integers that have exactly four factors.

19. [Number Patterns] *

If the general rule of a pattern is $n^2 + 4$ find the 6th term ($n = 6$).

20. [Expressions]

Simplify

$9z + 6y + y − 5z$

21. [Substitution] *

If $v = 8$ and $w = 3$, find the value of

$2v − w^2$

22. [Equations] *

Solve for k:

$7k + 16 = 2$

$k =$

23. [Rules / Graphs] *

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

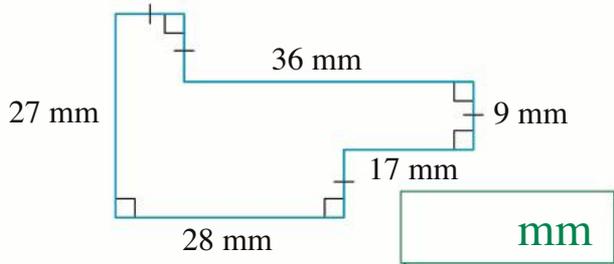| x	-2	-1	0	1	2
y	6				
(x,y)	$(-2,6)$	(,)	(,)	(,)	(,)

24. [Units of Measurement / Time] *

Mick departs Sydney on Tuesday at 6:00 am and arrives in Christchurch on Tuesday at 12:45 pm. If Christchurch time is 2 hours ahead of Sydney time, how long was the flight?

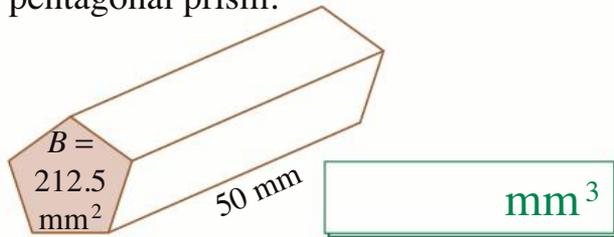⬚ h ⬚ min

25. [Perimeter] *

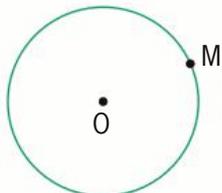Calculate the perimeter of the polygon.

27 mm
36 mm
9 mm
17 mm
28 mm

⬚ mm

26. [Area / Volume] *

Using $V = Bh$ find the volume of the pentagonal prism.
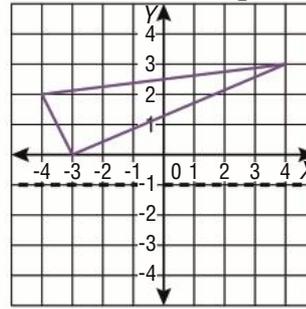
$B = 212.5$ mm^2
50 mm

⬚ mm^3

27. [Shapes]

Draw the radius passing through M.
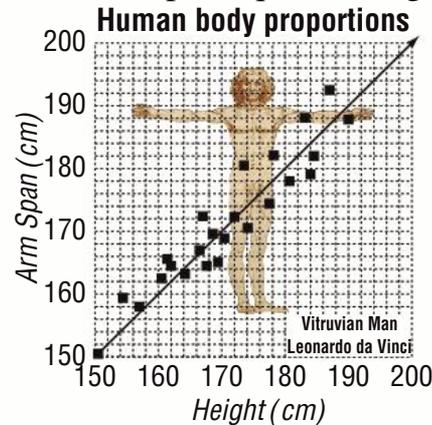
M
0

28. [Location / Transformation]

Redraw this triangle after reflecting it in the line of equation $y = -1$

29. [Statistics]

Which best describes the relationship?
A) Height taller than arm span
B) Height shorter than arm span
C) Arm span equal to height

Human body proportions

Vitruvian Man
Leonardo da Vinci

Arm Span (cm) vs Height (cm)

⬚

30. [Probability] *

A test has five True/False questions. If you answer each question with True or False and leave none of them blank, in how many ways can you answer the whole test?

⬚

31. [Problem Solving 1] *

Peter and David live 36 km apart. They leave their homes at 1:00 pm riding bicycles toward each other. Peter averages 8 km/h and David averages 10 km/h. At what time do they meet?

⬚

32. [Problem Solving 2] *

Four consecutive whole numbers are added. If the smallest number is $n - 1$, what is the sum of the four numbers?

⬚

33. [Problem Solving 3] *

If n is an integer, which of the following must be an odd integer?
A) $3n$ B) $n^2 + 3$
C) $n + 3$ D) $2n^2 + 3$

⬚