

NUMERACY

CALCULATOR ALLOWED



YEAR

9

Example test



PART A

50 min

Time available for students to
complete Part A: 50 minutes

Use 2B or HB
pencil **only**





1 What number is missing from this number sentence?

$$5 \times ? + 15 = 85$$

2



10



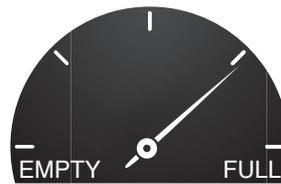
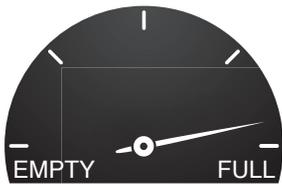
14



20



2 These pictures show the dials for four fuel tanks.
Which dial shows that the tank is about 75% full?



3 Jane bought a packet of 12 cards for \$15.00.
The average price of a card is

\$0.80



\$1.25



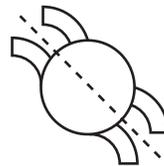
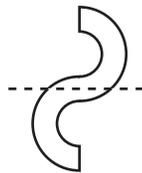
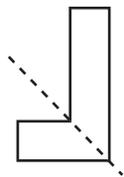
\$1.80



\$3.00

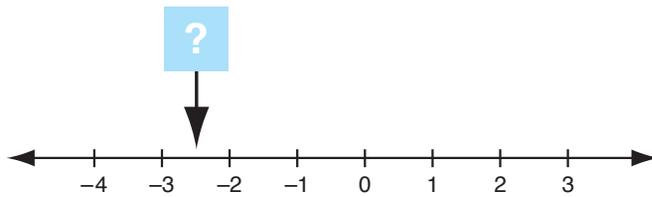


4 Which dotted line is a line of symmetry?





5



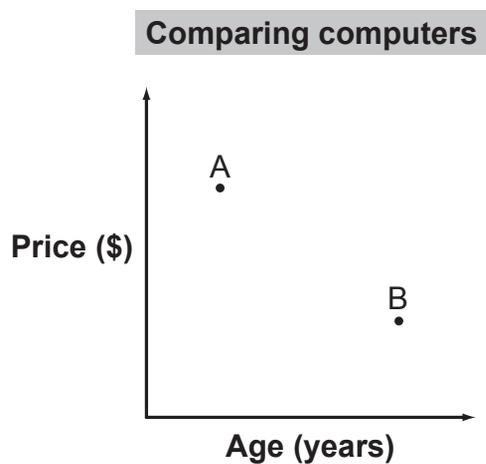
The arrow points to a position on the number line.

What number is at this position?

6

A shop sells new and used computers.

The graph shows the price of 2 similar computers and their age in years.



Which one of these statements is true?

- Computer B is older and less expensive than computer A.
- Computer A is newer and less expensive than computer B.
- Computer A is older and more expensive than computer B.
- Computer B is newer and more expensive than computer A.

7

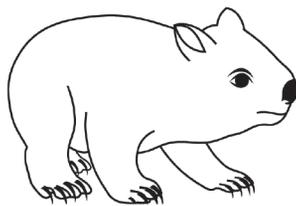
Peter wants to paint his bedroom walls.

What information will best help him decide how much paint to buy?

- volume of room
- capacity of room
- perimeter of all walls
- area of all walls



8 The top speed of this wombat is 660 metres per minute.



What is the top speed of the wombat in metres per second?

11

66

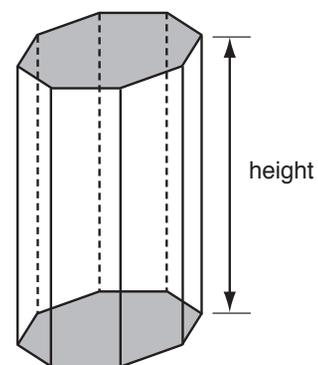
110

600

9 For any prism the surface area (S) is calculated by multiplying the perimeter of its base (p) by its height (h) and adding twice the area of the base (A).

Which one of these formulas could be used for this calculation?

- $S = 2phA$
- $S = ph + A$
- $S = ph + 2A$
- $S = 2ph + 2A$



10 Claire thinks of a number, n .
She multiplies the number by itself.
She then halves that answer and subtracts 10.

Which expression shows what Claire did?

$$\frac{2n - 10}{2}$$

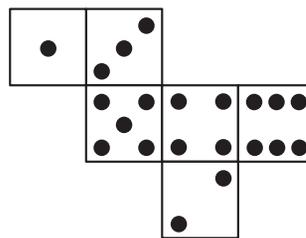
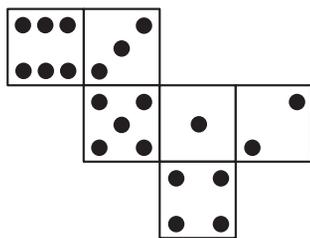
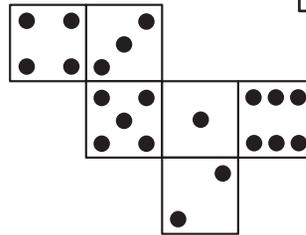
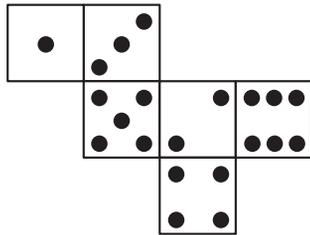
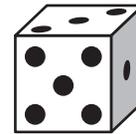
$$\frac{2n}{2} - 10$$

$$\frac{n^2}{2} - 10$$

$$\frac{n^2 - 10}{2}$$



11 Opposite faces on a standard die always add up to 7.
Which is a correct net for a standard die?



12 Helen has 24 red apples and 12 green apples.
What fraction of the apples are green?

$\frac{1}{2}$

$\frac{1}{3}$

$\frac{1}{4}$

$\frac{1}{12}$

13 A water tank has a capacity of 6.25 kilolitres.
How many **litres** does the water tank hold when it is full?

625

6025

6250

62500



- 14** This block has 6 faces which are numbered from 1 to 6.
Vicky throws the block 1000 times to test it and records the outcomes.



Number on top face	1	2	3	4	5	6
Frequency	150	360	146	144	68	132

What is the probability of rolling a 2 based on Vicky's results?

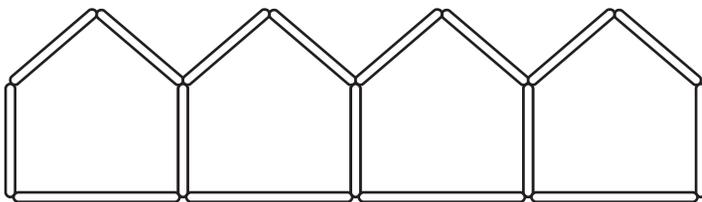
$$\frac{1}{6}$$

$$\frac{1}{60}$$

$$\frac{9}{25}$$

$$\frac{3}{500}$$

- 15** Sticks are used to make this pattern of pentagons.



In this pattern the rule for the number of sticks is

- $5 \times$ number of pentagons.
- $4 \times$ number of pentagons.
- $4 \times$ number of pentagons $- 1$.
- $4 \times$ number of pentagons $+ 1$.

- 16** A rule for y in terms of x is $y = 6 - 4x$.

When $x = 3.75$ the value of y is

$$-9$$

$$-1.75$$

$$7.5$$

$$9$$



17 Which of these are always equal in length?

- the opposite sides of a trapezium
- the opposite sides of a parallelogram
- the diagonals of a trapezium
- the diagonals of a parallelogram

18 Sally has seen four movies.

The ticket prices were \$13, \$8, \$10 and \$10.

The next movie she plans to see is in 3D and the ticket price is \$34.

Which of these will **not** change after Sally sees the next movie?

- the median of her ticket prices
- the mean of her ticket prices
- the range of her ticket prices
- the total cost of her tickets

19 When this kettle is full of water it has a mass of 2900 grams.



When the kettle is half full of water it has a mass of 2050 grams.

What is the mass of the kettle when it is empty?

grams



20 In a gym class, 29 students took turns jumping.
Pete recorded the height each student jumped.

Height (cm)

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

Key: 5|2 means 52

What is the median height?

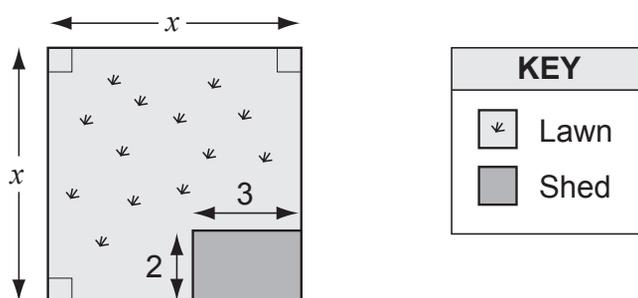
63 cm

64 cm

65 cm

66 cm

21 Sue drew this plan of a square block of land.
All measurements are given in metres.



The area of the lawn in square metres is

$x^2 - 6$

$x^2 + 6$

$2x^2 - 5$

$2x^2 - 6$



- 22** Mira made this table showing population data over two years for the six Australian states.

Some data for South Australia is not shown.

Population of Australian States			
	2002 Population	2003 Population	Percentage increase from previous year
NSW	6 662 212	6 716 277	0.8%
Vic	4 884 952	4 947 985	1.3%
Qld	3 754 154	3 840 111	2.3%
SA	1 522 475	?	0.6%
WA	1 936 902	1 969 046	1.7%
Tas	474 305	479 958	1.2%

What was the population of South Australia (SA) closest to in 2003?

2 537 500

2 436 000

1 613 800

1 531 600

- 23** Which of these percentages is closest in value to $\frac{7}{9}$?

76%

77%

78%

79%

- 24** Kiri has to find the value of this expression **without** a calculator.

$$20 - 12 \times \sqrt{9.5 + 6.5}$$

Which calculation should she do first?

$20 - 12$

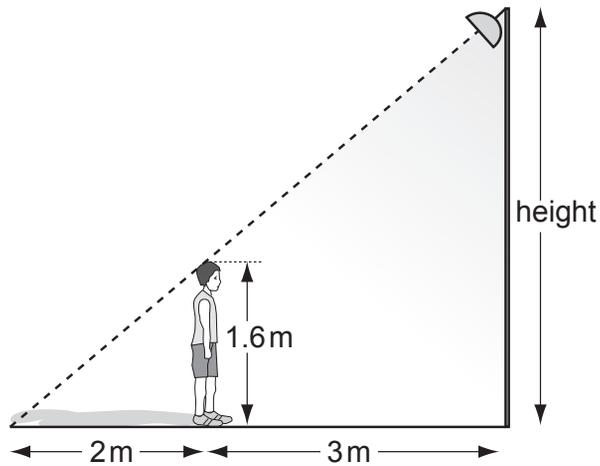
$12 \div 9.5$

$\sqrt{9.5}$

$9.5 + 6.5$



- 25** Joe is 1.6 m tall. His shadow is 2 m long when he stands 3 m from the base of a floodlight.



What is the height of the floodlight?

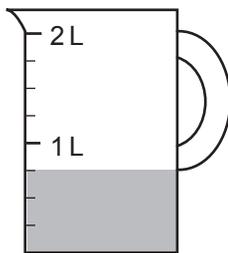
2.4 m

2.6 m

4.0 m

4.2 m

- 26** This jug has some milk in it.

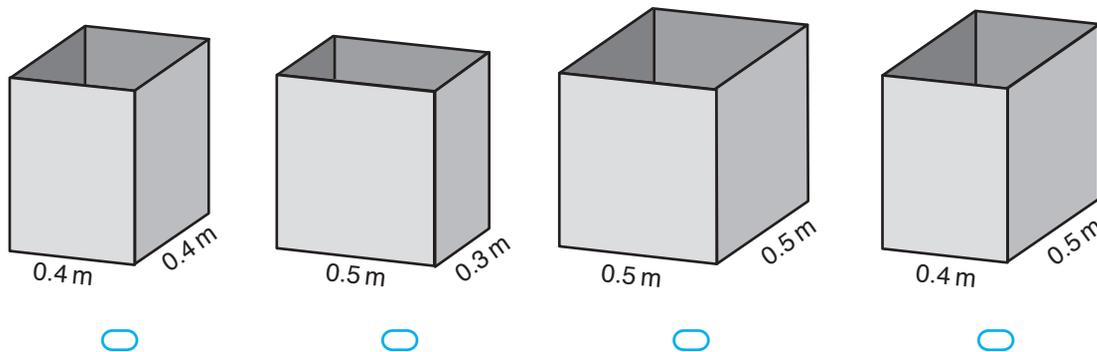


If Eve adds an extra 500 mL of milk to the jug, how many millilitres (mL) of milk will then be in the jug?

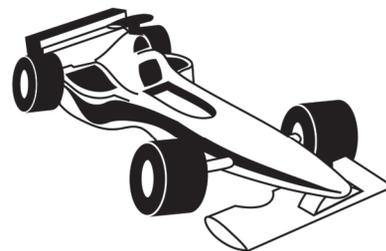
mL



- 27** A factory makes metal boxes. The base and sides of the boxes are rectangular. The height of each box is 0.8 metres. Which box has a volume of 0.16 cubic metres?

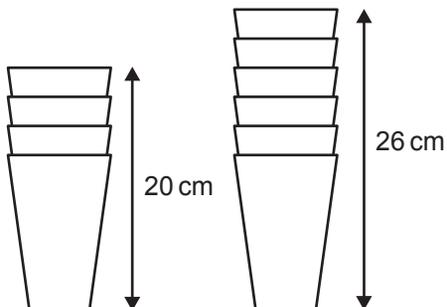


- 28** A racing car used 255 litres of fuel to complete a 340 km race. On average, how many litres of fuel did the car use every 100 km?



litres per 100 km

- 29** A stack of 4 cups is 20 cm tall. A stack of 6 cups is 26 cm tall.



Which rule can be used to work out the height, in centimetres, of a stack of n cups?

$6n - 10$



$6n - 4$



$3n + 11$



$3n + 8$





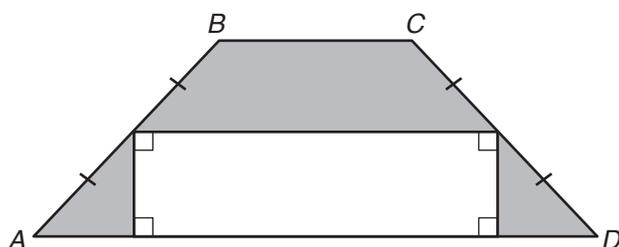
30 This list shows the number of films that nine members of a film club watched in April.

Number of films watched	0, 1, 2, 2, 3, 4, 5, 5, 5
--------------------------------	----------------------------------

Which of the following is true for this data?

- mean $>$ median = mode
- mean $<$ median $<$ mode
- mean = median = mode
- mean = median $<$ mode

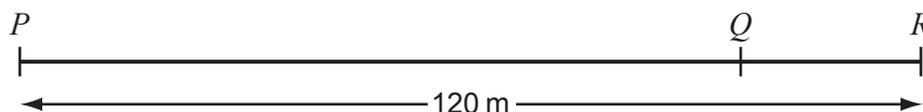
31 The area of the rectangle in this diagram below is 10 cm^2 .



What is the area of the trapezium $ABCD$?

cm^2

32



The distance from P to Q is four times the distance from Q to R.
The distance from P to R is 120 metres.

What is the distance from Q to R?

15 metres

20 metres

24 metres

30 metres



33 In February 2010, the population of the world was approximately 6 800 000 000 people.

Another way of writing this number is

6.8×10^8

6.8×10^9

68×10^9

68×10^{10}

34 What is the value of $2 + 5x - x^2$ when $x = -2$?

-12

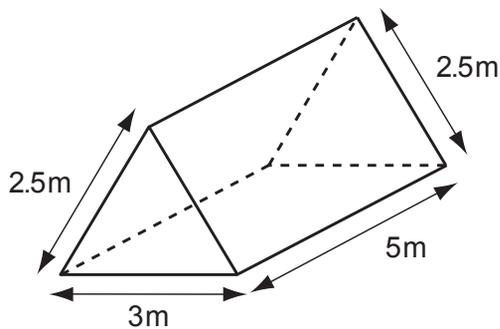
-4

8

16

35 The cost in dollars to print n books is $500 + 10n$.
How many books are printed for a cost of \$15 000?

36 This solid triangular prism needs all its faces painted.
The area of each triangular face is 3 m^2 .



What is the total area to be painted?

 m^2



37 A builder needs 6.5 cubic metres of concrete for a job.
This table shows the mixture for the concrete.

cement	sand	small stones	water
2 parts	4 parts	6 parts	1 part

How many cubic metres of sand does the builder need?

cubic metres

38



When this car moves forward by 180 cm, each wheel does one full turn.

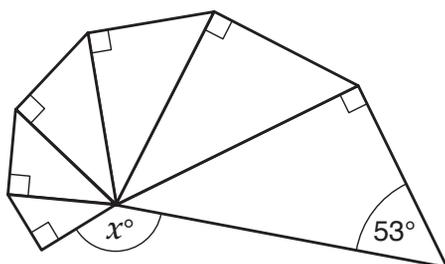
What is the diameter of the wheels to the nearest centimetre?

cm

39

A model of how a shell grows can be made using enlarged copies of the same triangle.

Here is a model.



What is the value of x ?



40

A rectangular sheet of paper had a width of 841 millimetres.
Its area was 1 square metre.

What was its length to the nearest millimetre?

millimetres

STOP – END OF PART A

Do not turn this page.



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**Do not write on this page.
Do not turn this page.**