

NUMERACY

CALCULATOR ALLOWED



YEAR
9
2014



SESSION 1

40 mins

Time available for students to
complete test: 40 minutes

Use 2B or HB
pencil **only**





1

A total of 301 617 babies were born in Australia in 2011.

Of these babies, 146 621 were girls.

How many boys were born in Australia in 2011?

154 996

245 016

301 617

448 238

2

Rose tosses a fair coin 100 times.

Which of these results is most likely?

98 heads

53 heads

39 heads

26 heads

3

This table shows some information about Australia's 10 tallest structures.

Name of structure	Height (m)	Location
Omega Mast	427	Woodside
Holt Main Mast	389	Exmouth
Holt Outer Mast	364	Exmouth
Q1 Tower	322	Gold Coast
Sydney Tower	309	Sydney
Holt Inner Mast	304	Exmouth
Eureka Tower	297	Melbourne
The Rialto	270	Melbourne
MIM Stack	270	Mount Isa
120 Collins St	264	Melbourne

How much taller than Melbourne's tallest structure is Sydney's tallest structure?

12 metres

39 metres

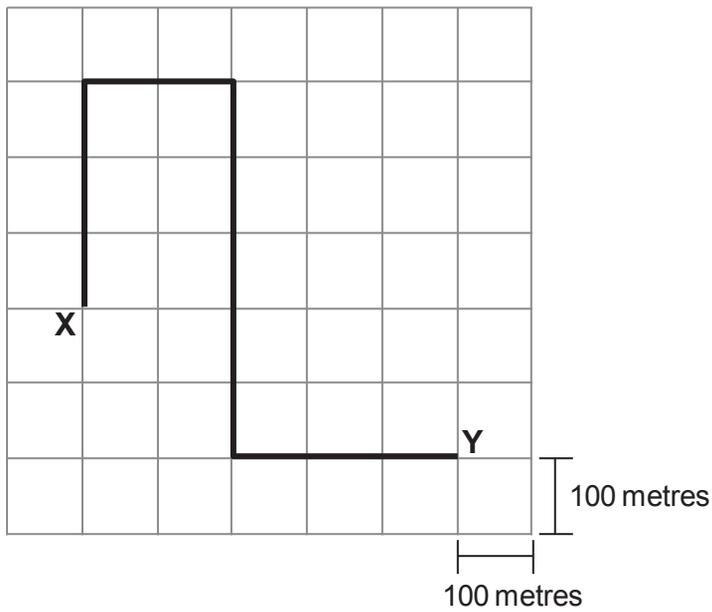
118 metres

130 metres



4

Tina walks along the path from X to Y.



How far does she walk in **kilometres**?

0.13

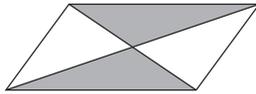
1.3

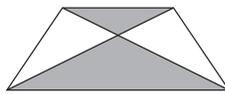
13

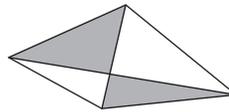
1300

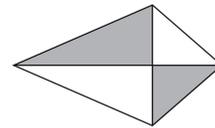
5

In which of these are the two shaded triangles the same size and shape?









6

Which number shows 3 thousands, 5 tens and 2 tenths?

350.02

3005.2

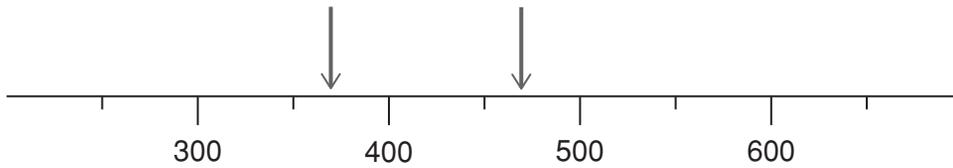
3050.2

3500.02



7

Two arrows show points on this number line.

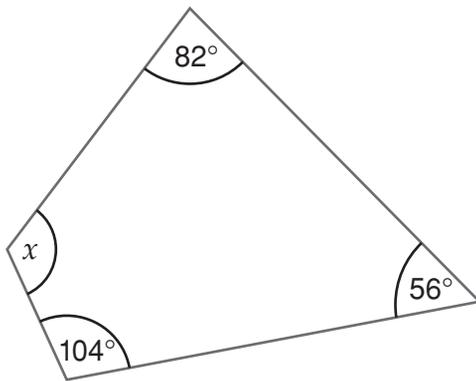


Which one of these numbers lies between the two arrows?

- 350
- 390
- 490
- 550

8

Mia measures three angles of a block of land. She makes this sketch.



What is the size of angle x ?

- 98°
- 108°
- 118°
- 128°

9

In Australia, road distance is measured in kilometres.

In the USA, road distance is measured in miles.

5 miles is about the same distance as 8 kilometres.

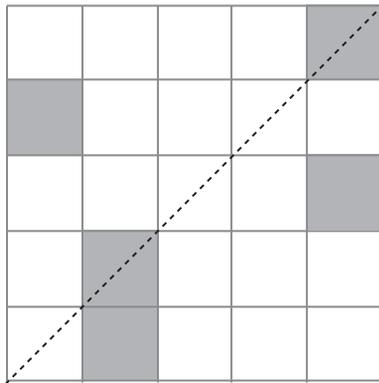
About how many miles is 120 kilometres?

- 15 miles
- 40 miles
- 75 miles
- 192 miles



10

Indra is shading squares in this grid to make a pattern.



He needs to shade some extra squares so that the dotted line will be a line of symmetry.

What is the smallest number of extra squares he needs to shade?

- 1 3 4 5

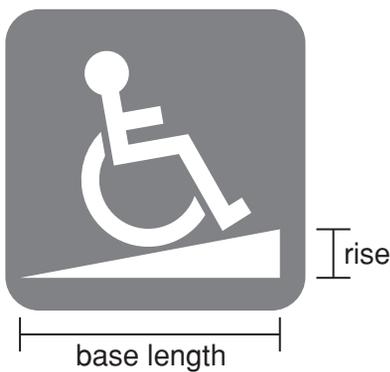
11

Which of these best describes the chance of an event that is very likely?

- $\frac{1}{3}$ $\frac{1}{2}$ $\frac{5}{6}$ 1

12

Wheelchair access ramps have a rise of 1 metre for every 14 metres of base length.



not to scale

What is the base length for a ramp with a rise of 0.4 metres?

- 5.6 metres 13.4 metres 14.4 metres 35.0 metres



13

Sue has only 10-cent, 20-cent and 50-cent coins in her pocket.

In total she has \$2.80.

What is the smallest number of coins she could have?

- 5 6 7 8 9

14

Paul takes part in a swimathon to raise money.

He has two sponsors.

His father donates \$2.50 for each lap of the pool that Paul swims.

His grandmother donates \$10 in total.

How many laps does Paul need to swim to raise \$100?

- 8 10 36 40 44

15

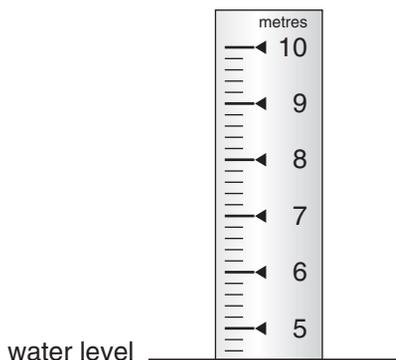
Dani earns \$45 for washing 9 cars.

Which expression shows how many dollars she will earn for washing n cars?

- $(45 \times 9) \times n$ $(45 \div 9) \div n$ $(45 \times 9) \div n$ $(45 \div 9) \times n$
-

16

This indicator measures the depth of water in a lake.



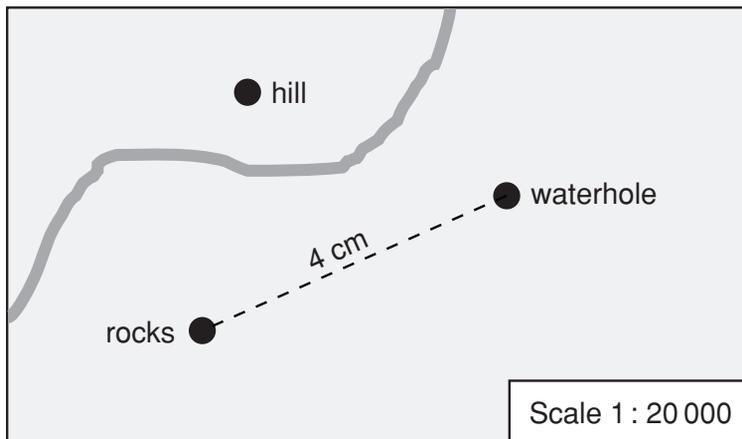
What is the depth of the water?

- 4.2 metres 4.4 metres 4.7 metres 5.3 metres 5.6 metres



17

On this map the distance from the rocks to the waterhole is 4 cm.



What is the actual distance from the rocks to the waterhole?

50 m



80 m



500 m



800 m



18

Andy and Kal ran a race together.

Kal finished the race in one hour and five minutes.

Andy took 35% longer than Kal.

Approximately how long did Andy take to finish the race?

88 minutes



100 minutes



140 minutes



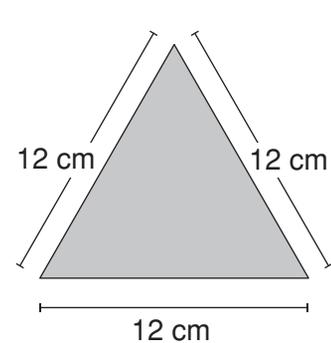
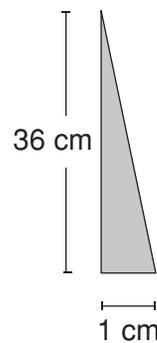
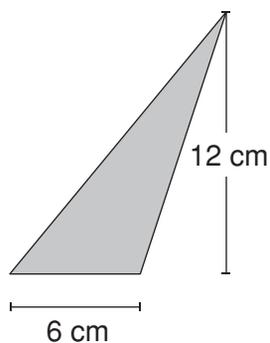
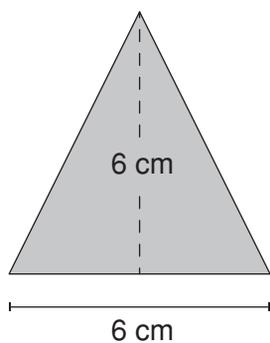
142 minutes



19

These triangles are not drawn to the same scale.

Which one has an area of 36 square centimetres?





20

This table gives information about two drill bits with similar diameters.

Drill bit	Diameter
	$\frac{1}{8}$ inch
	3 millimetres

One inch equals 25.4 millimetres.

What is the difference in millimetres between the diameters of the two bits?

Give your answer to three decimal places.

millimetres

21

Bill is standing 5 metres due north of Sarah.

Sarah is standing 5 metres due east of Alice.

Alice is facing east. She then turns anticlockwise so that she is facing Bill.

How many degrees does Alice turn through?

45°

60°

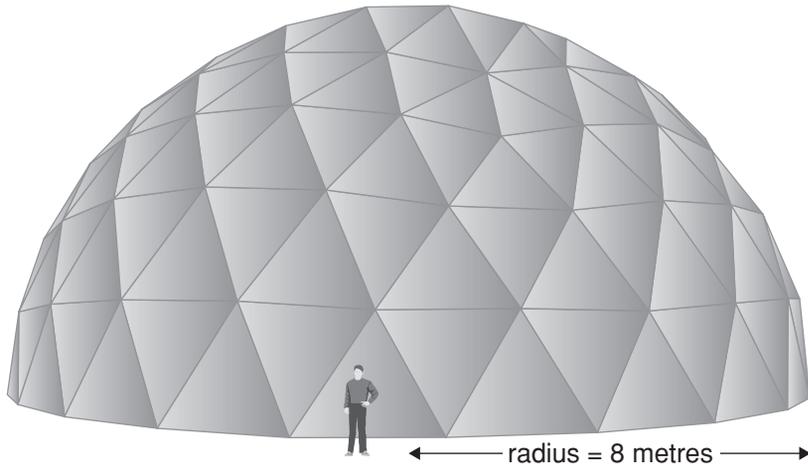
90°

120°

135°



22



This calculation gives the approximate volume of the dome in cubic metres.

$$Volume = \frac{1}{2} \times \frac{4\pi}{3} \times 8^3$$

What volume does the calculation give, to the nearest cubic metre?

 m³

23

$$100 - \frac{\sqrt{85^2 + 132^2}}{2} = \text{[]}$$

24

About 40 000 skin cells are lost from the surface of our skin every minute.
Which of these values is closest to the number of skin cells lost in one day?

9.6×10^4

9.6×10^5

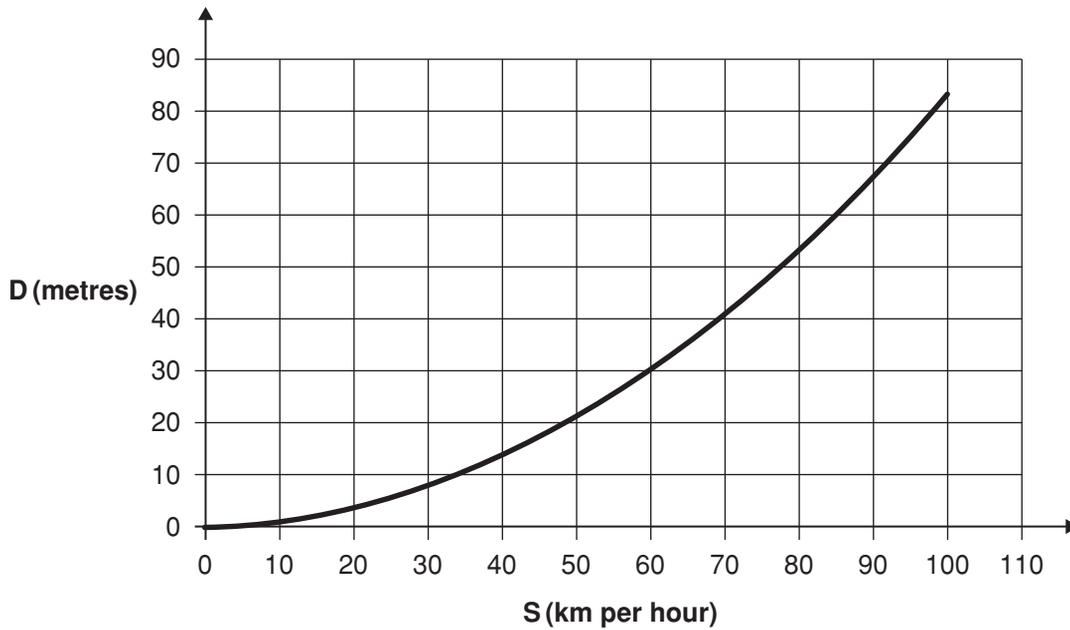
5.76×10^5

5.76×10^7



25

Stopping distance of car for different speeds



The rule for the graph is

$$D = \frac{S^2}{k}$$

D is the distance in metres that a car takes to stop when it is travelling at a speed of S kilometres per hour.

The graph shows that a car travelling at 60 kilometres per hour takes 36 metres to stop.

Use this to calculate the value of k .

26

Dan worked for 7 hours at his normal pay rate.

He also worked for 4 hours on the weekend at double his normal pay rate.

Dan was paid \$445.50 in total.

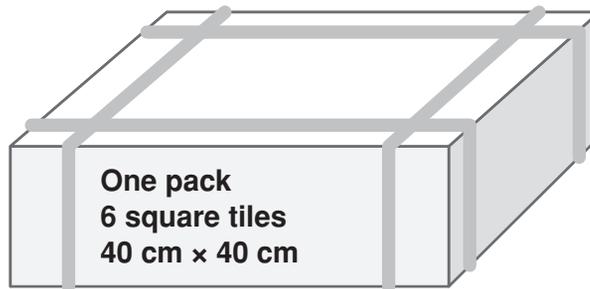
How much was his normal pay rate per hour?

\$



27

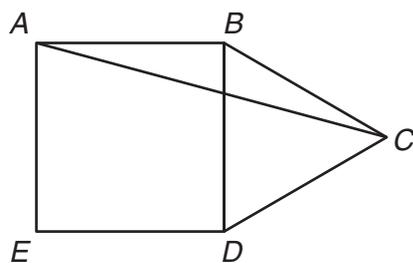
Alex has a rectangular room, 3.2 metres long and 2.4 metres wide. She wants to cover the floor of her room with these square tiles.



How many packs of tiles does Alex need?

28

$ABDE$ is a square. BCD is an equilateral triangle.



What is the size of $\angle BAC$?

15°

20°

22.5°

25°

30°

29

$$\frac{2}{35} = \frac{1}{30} + \frac{1}{\text{?}}$$

What does the missing number ? equal?



30

David counted the birds in his garden.
 $\frac{1}{3}$ of the birds were cockatoos and $\frac{1}{4}$ were pigeons.
 He saw 6 more cockatoos than pigeons.
 How many birds did David see?

18

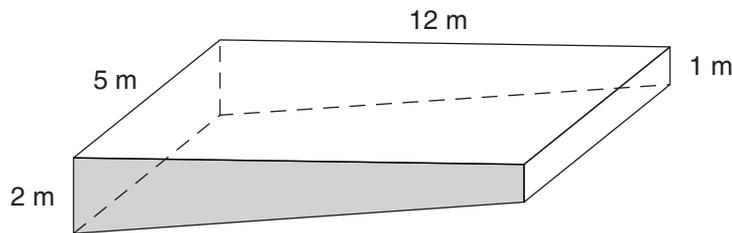
24

42

72

31

This is a drawing of a swimming pool. It has the shape of a prism.
 The shaded side is a trapezium with area 18 square metres.

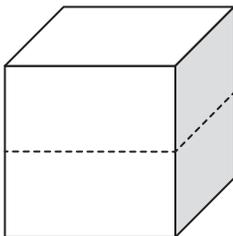


The capacity of one cubic metre is 1000 litres.
 What is the capacity of the pool in litres?

litres

32

A cube is cut into two identical rectangular prisms.



What is the ratio of the surface area of the cube to the surface area of one of the prisms?

1 : 2

2 : 1

2 : 3

3 : 2

STOP – END OF TEST



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