

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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MATHEMATICS

1112/02

Paper 2

October 2019

1 hour

Candidates answer on the Question Paper.

Additional Materials: Calculator
 Geometrical instruments
 Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Calculator allowed.

You should show all your working in the booklet.

The number of marks is given in brackets [] at the end of each question or part question.

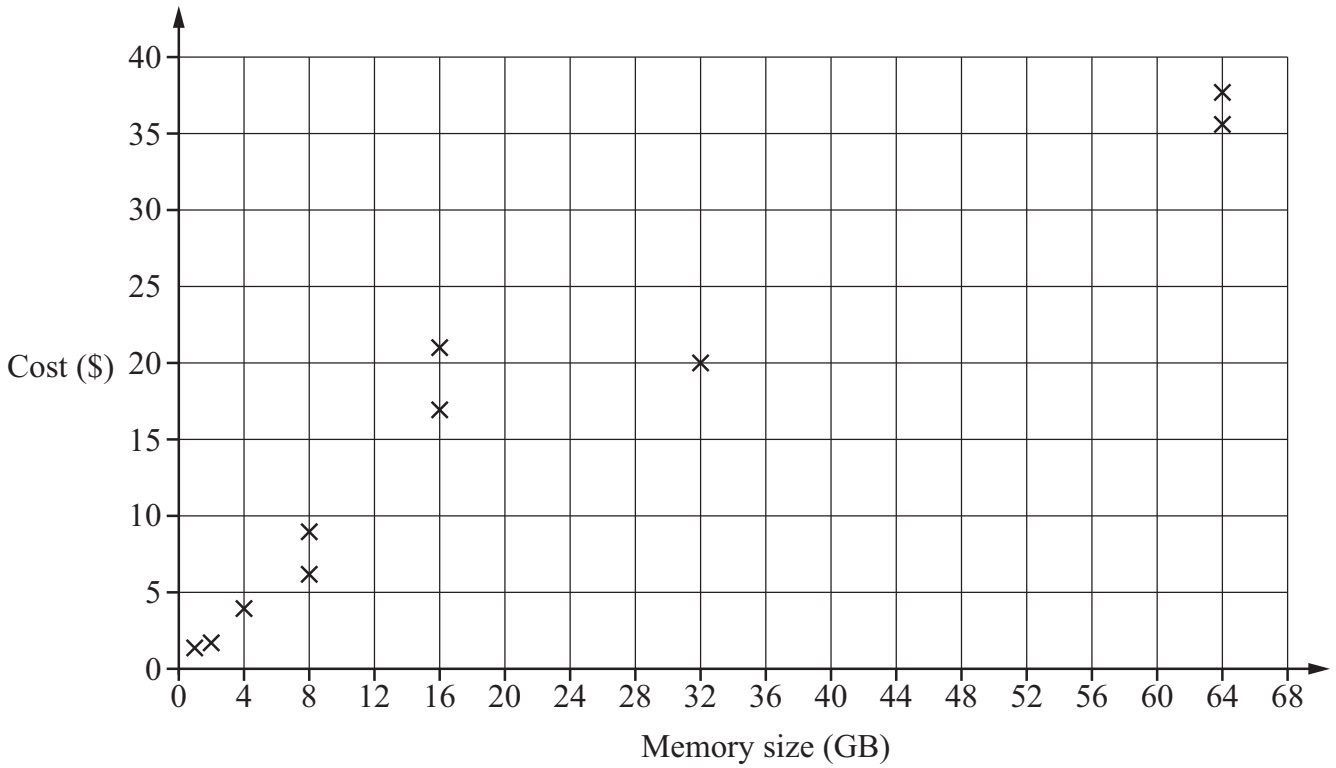
The total number of marks for this paper is 50.

This document consists of **19** printed pages and **1** blank page.



- 1 Jamila does a survey to find the cost in dollars (\$) and the memory size in gigabytes (GB) of memory sticks for computers.

The scatter graph shows the results of her survey.



- (a) Jamila buys a memory stick for \$8

Draw a ring around the most likely memory size for Jamila's memory stick.

1 GB 2 GB 8 GB 32 GB 64 GB

[1]

- (b) Describe the relationship between the memory size and cost of the memory sticks.

.....

[1]

2 Simplify these power calculations.

Give each answer as a power of 6

(a) $6^8 \div 6^2$

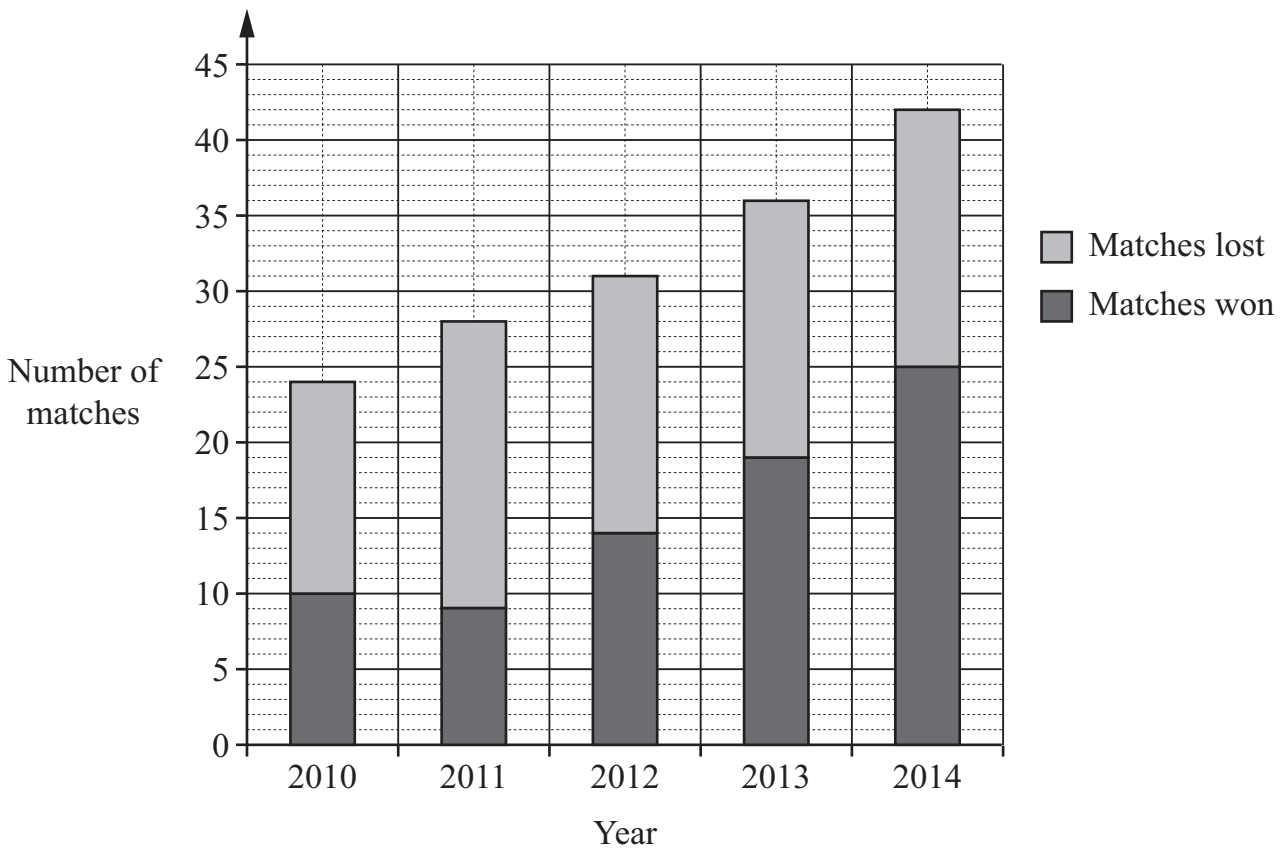
..... [1]

(b) $3 \times 2 \times 6^3 \times 6^4$

..... [1]

3 Safia is a tennis player.

The bar chart shows the number of matches she played each year from 2010 to 2014



Write down how many matches she lost in 2010

..... [1]

4 Write one of the signs

< = >

in each box to make a correct statement.

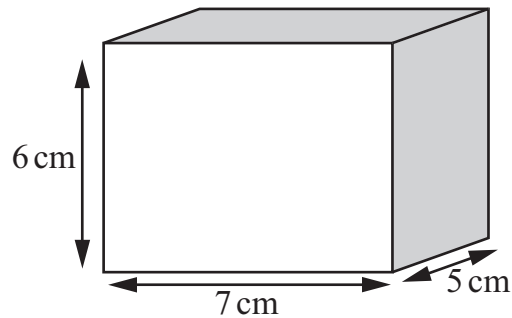
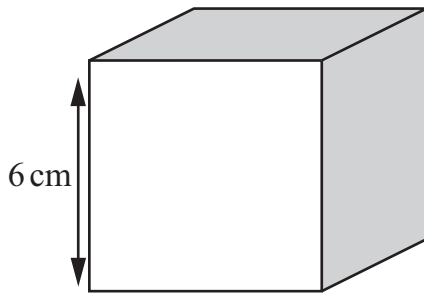
0.04 0.040

0.44 0.044

0.404 0.44

[2]

5 The diagram shows a cube and a cuboid.



NOT TO
SCALE

Tick (✓) to show which has the larger volume.

Cube Cuboid

You must show how you calculated your answer.

[2]

6 Lily has seven cards.



(a) She picks a card at random.

Write down the probability that she picks a card that has a circle on it.

..... [1]

(b) Lily is given one more card.

The probability of picking at random a card with a square on it is now $\frac{1}{2}$

Draw a ring around the shape that must be on the new card.

square

circle

triangle

cannot tell

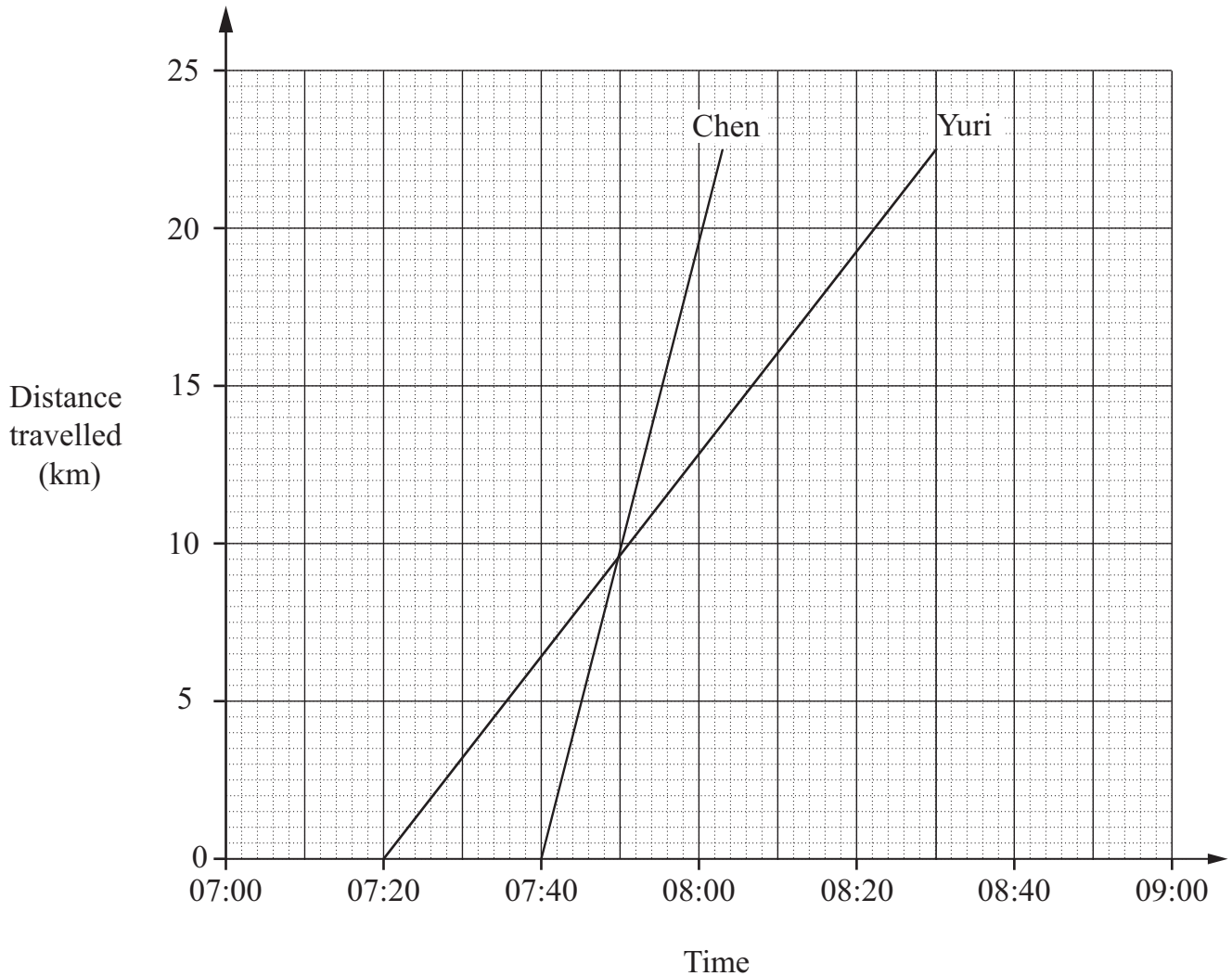
[1]

7 Factorise $6x + 12y - 3z$

..... [1]

8 Chen and Yuri both travel to work along the same route.

Here is a travel graph showing their journeys.



(a) Write down the distance that they travel to work.

..... km [1]

(b) Chen passes Yuri on his way to work.

Write down the time at which Chen passes Yuri.

..... [1]

(c) Chen's journey takes 23 minutes.

Work out how much longer Yuri's journey takes.

..... minutes [1]

- 9 Rajiv wants to buy 90 light bulbs.
He can buy them from Germany or the United States.

In Germany, a pack of 6 light bulbs costs 33 euros.
In the United States, a pack of 3 light bulbs costs 18 dollars.

The exchange rate is 1 euro = 1.1 dollars.

Work out how much Rajiv can save by buying his 90 light bulbs from the United States.
Give your answer in dollars.

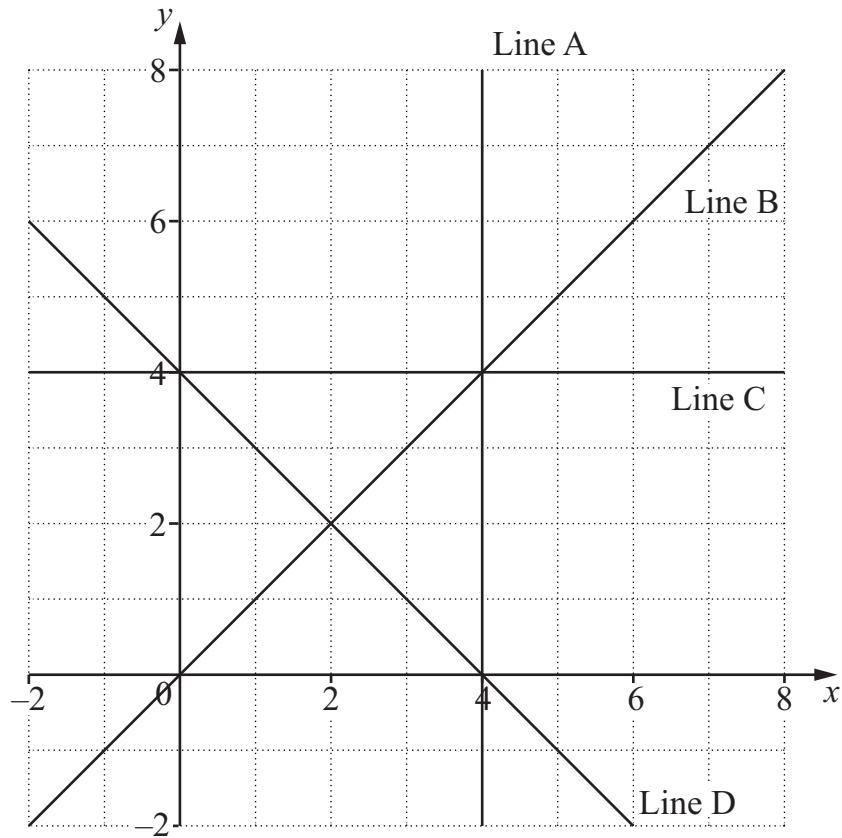
.....dollars [3]

- 10 Write the missing numbers in the boxes to make the statements correct.

(a) 15% of 40 = $\frac{1}{5}$ of [1]

(b) % of 150 = $\frac{2}{3}$ of 90 [1]

11 Four lines are shown on the grid.



(a) Draw a ring around the line that has equation $y = 4$

Line A

Line B

Line C

Line D

[1]

(b) Line E is parallel to Line A and passes through the point $(-2, 5)$.

Write down the equation of Line E.

..... [1]

12 Angelique has some building blocks.
The blocks are red or green or yellow or blue.

- (a) There are 4 times as many blue blocks as there are green blocks.
Angelique picks a block at random.

Complete the table to show the probability of picking each colour.

Colour	Red	Green	Yellow	Blue
Probability	0.2		0.05	

[2]

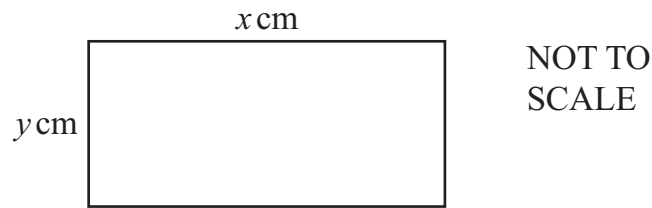
- (b) Angelique picks two blocks at random.

Complete the sample space diagram showing all the possible outcomes for the colours of her two blocks.

		Block 2			
		Red (R)	Green (G)	Yellow (Y)	Blue (B)
Block 1	Red (R)	RR	RG	RY	RB
	Green (G)				
	Yellow (Y)			YY	
	Blue (B)	BR			

[1]

13 The diagram shows a rectangle of length x cm and width y cm.



(a) Write down an equation that shows the perimeter of the rectangle is 65 cm.

..... [1]

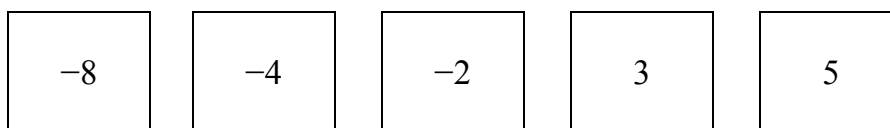
(b) Write down an equation that shows the length of the rectangle is 4 times the width.

..... [1]

(c) Use your equations to work out the value of x .

$x =$ [2]

14 Aiko has these number cards.



Aiko chooses two of the number cards.
She multiplies the numbers together.

Find the maximum possible answer she can get.

..... [1]

15 Complete the gaps in these statements.

The first one has been done for you.

1250 metres = 1.25 kilometres

..... centimetres = 45.2 millimetres

0.604 litres = millilitres

1.87 = 1870 kilograms

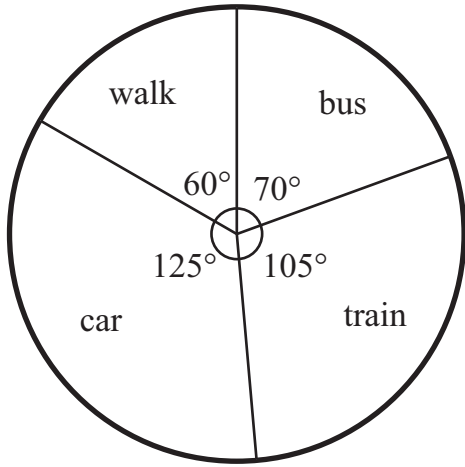
[2]

16 Write down the inverse of this function.

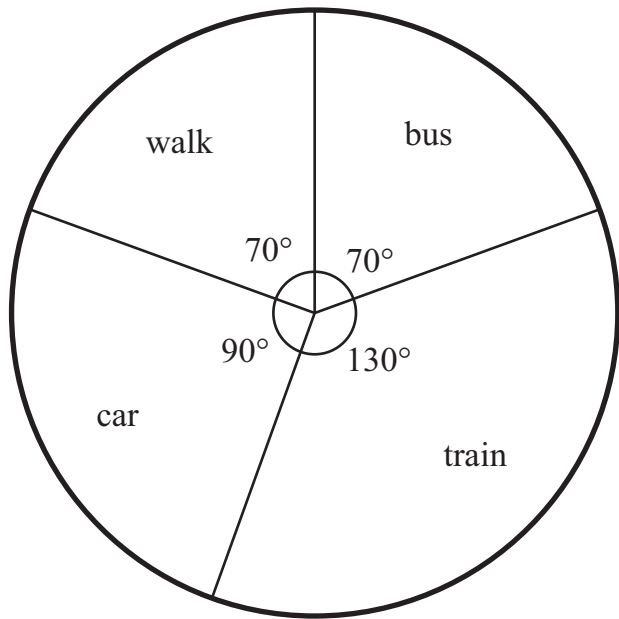
$$y = 2x$$

$y =$ [1]

17 Here are two pie charts showing how students in different groups travel to school.



Group A
72 students



Group B
108 students

Ahmed says,

‘The same **proportion** of students travel by bus in both groups.’

Tick (✓) to show whether Ahmed is correct or incorrect.

Correct

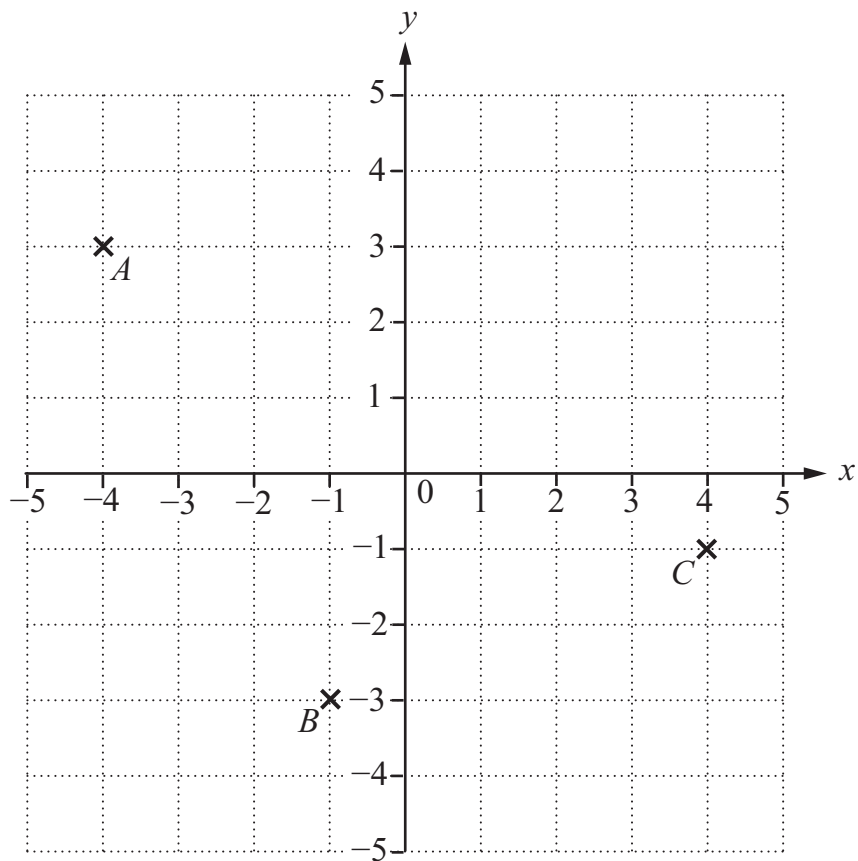
Incorrect

Explain your answer.

.....

..... [1]

18 The diagram shows points A , B and C plotted on a grid.



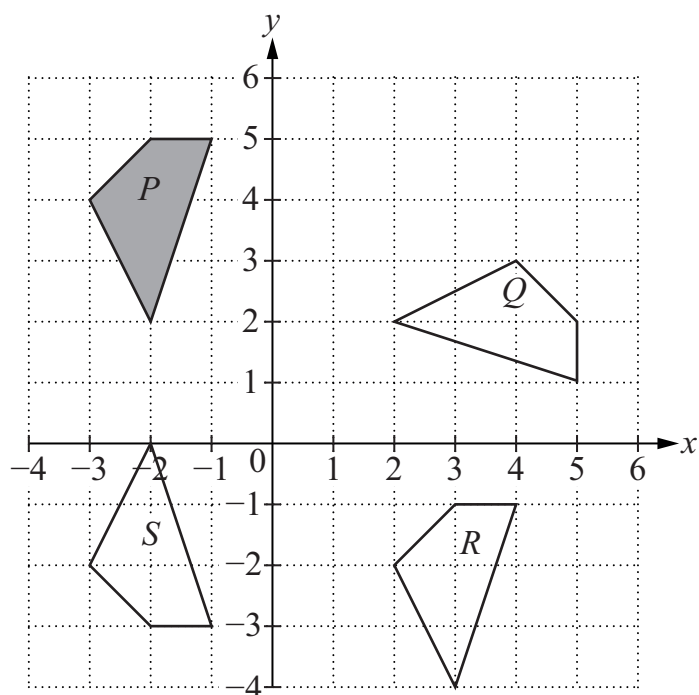
D is another point.

D has the same y -coordinate as A
and
 CD is parallel to BA .

Write down the coordinates of D .

(..... ,) [1]

19 Quadrilaterals P , Q , R and S are shown on the grid.



Complete the descriptions of each transformation.

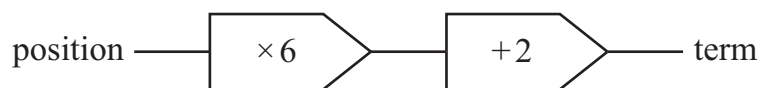
(a) Quadrilateral is a reflection of quadrilateral P in the line with equation

[1]

(b) Quadrilateral is a rotation of quadrilateral P by degrees clockwise, about the point (..... ,).

[2]

20 The position-to-term rule for a sequence is



(a) Work out the second term of the sequence.

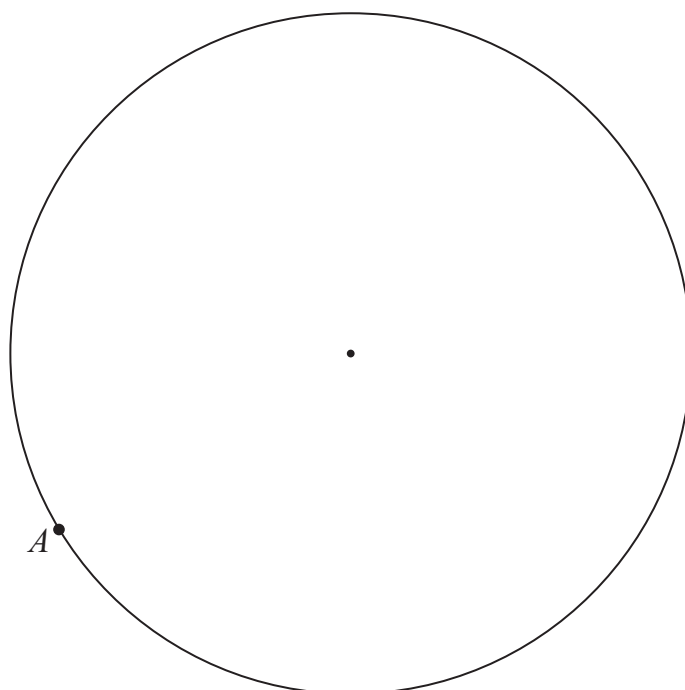
..... [1]

(b) Complete the term-to-term rule for the sequence.

Add

[1]

21 Construct an inscribed regular hexagon ($ABCDEF$) inside this circle.
Vertex A is marked.
Leave in your construction lines.



[2]

22 A garage sells vehicles.

40% of the vehicles for sale are vans.

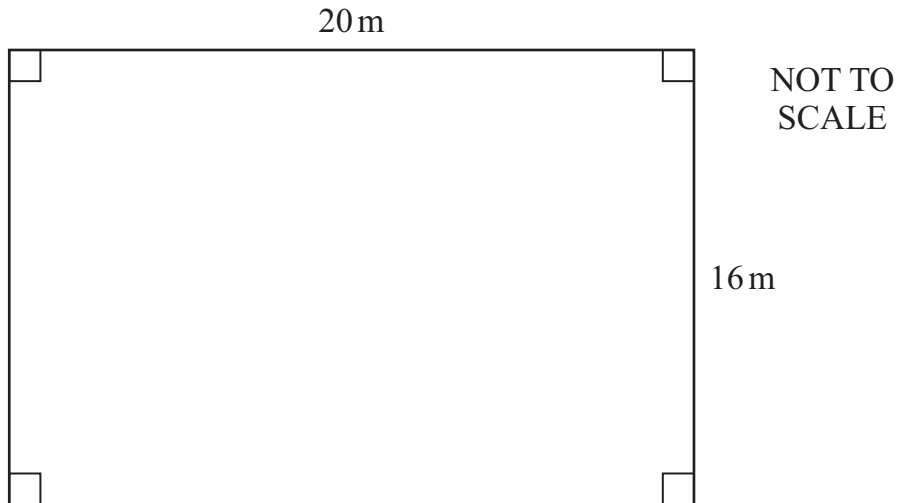
25% of the vans are red.

The garage has 12 red vans.

Work out how many vehicles the garage has for sale altogether.

..... [2]

23 The diagram shows Hassan's garden.

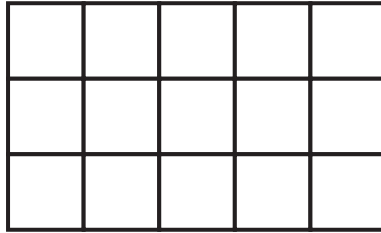


1 m^3 of soil has a mass of 1.2 tonnes.
Hassan buys 30 tonnes of soil.
He spreads the soil evenly over his garden.

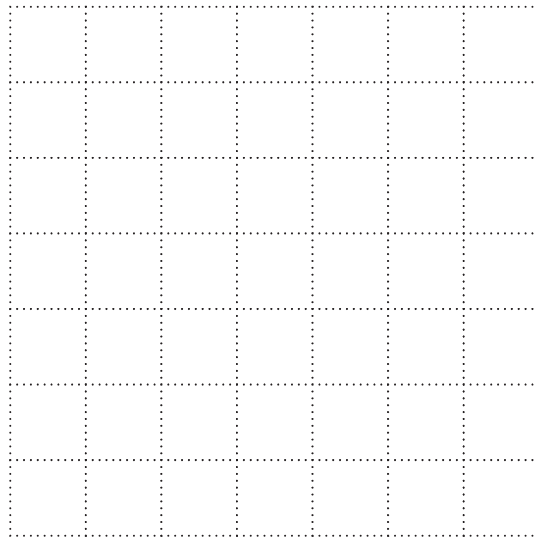
Calculate the depth, in centimetres, of soil he spreads on his garden.

..... cm [3]

- 24 A solid cuboid is made from 60 cubes, each with side length of one centimetre.
The front elevation of the cuboid is shown in the diagram.



Draw the plan view of the cuboid.



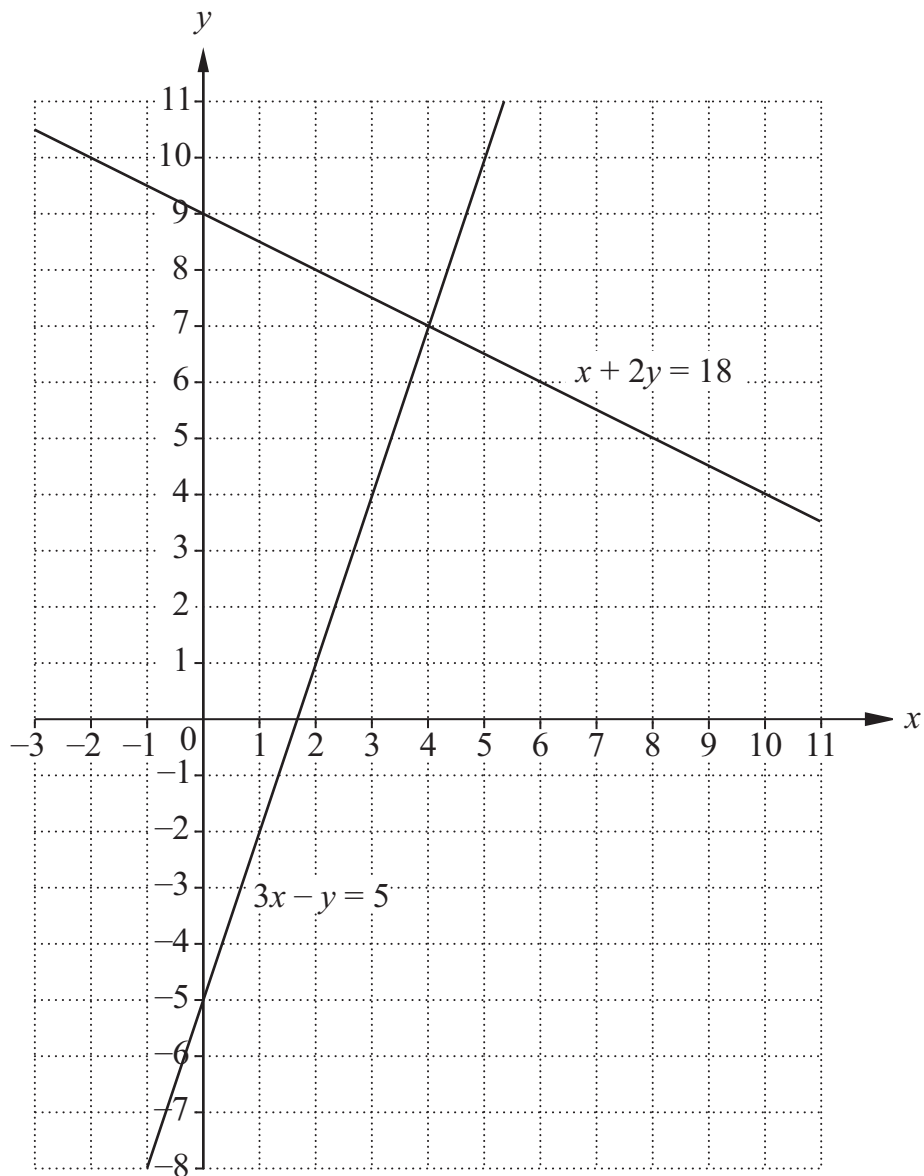
[1]

- 25 The square of a number is 64

Write down the **two** possible values for the number.

..... and [1]

26 Two lines with equations $x + 2y = 18$ and $3x - y = 5$ are drawn on the grid.



Use the graph to find the solution to the simultaneous equations

$$x + 2y = 18 \quad \text{and} \quad 3x - y = 5$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [1]$$

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