AQA

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

F

Foundation Tier

Paper 3 Calculator

Shadow paper based on 2020 question paper

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
TOTAL	

Answer **all** questions in the spaces provided.

Do not write outside the box

1 What is 4.8676 to 1 decimal place?

Circle your answer.

[1 mark]

4.9 | 4.87 | 4.86 | 4.8

2 25% of a number is 40

Circle the number.

[1 mark]

10 | 20 | 160 | 1000

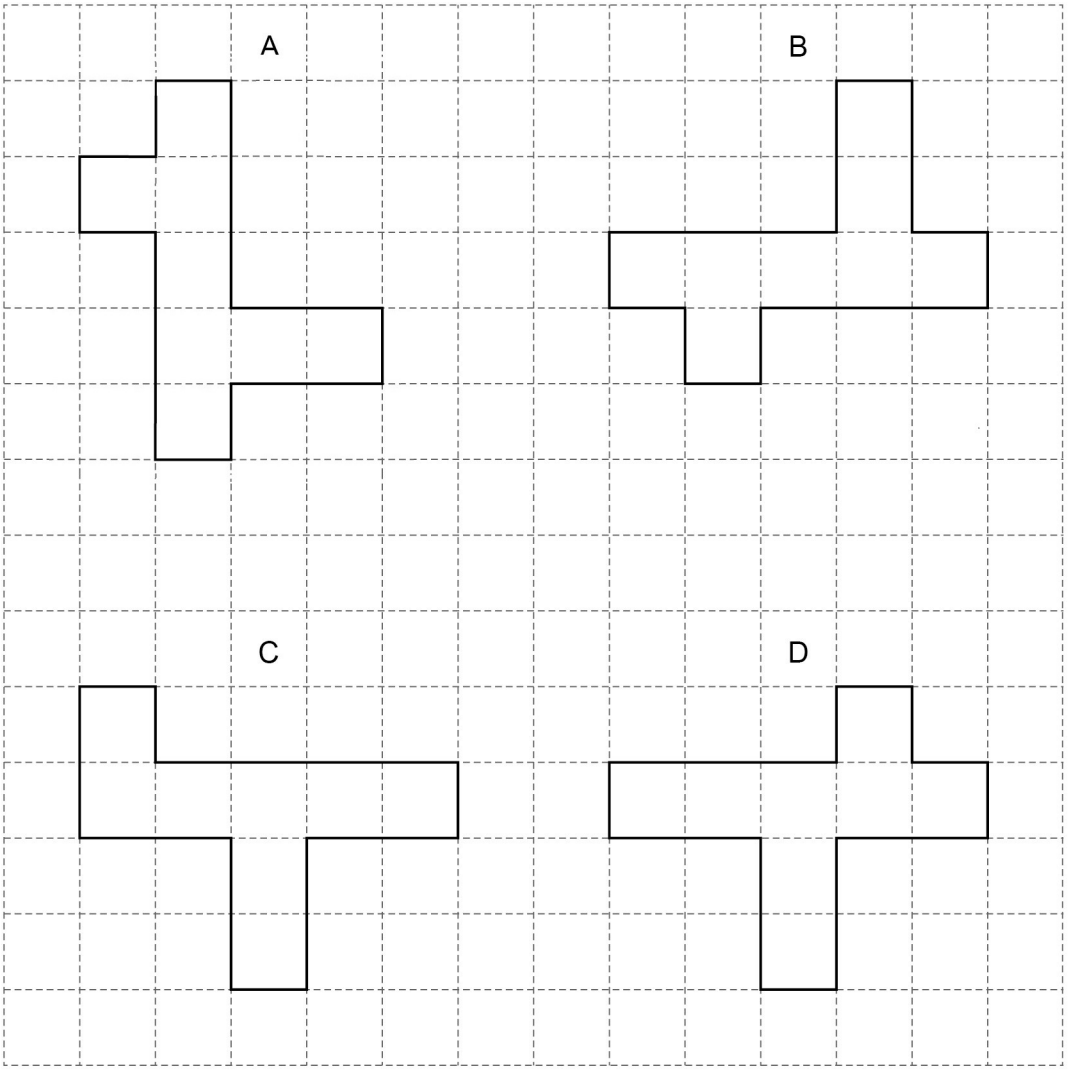
3 Circle the correct statement.

[1 mark]

$0.03 > 0.3$ | $0.03 \geqslant 0.3$ | $0.03 = 0.3$ | $0.03 < 0.3$

Do not write outside the box

4 Shapes A, B, C and D are on a square grid.



Which two shapes are congruent?

Circle your answer.

[1 mark]

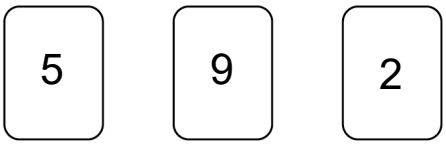
C and D B and A A and C D and B

4

Turn over ►

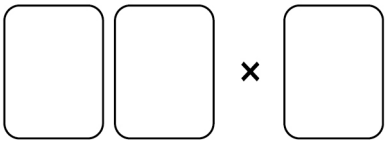
Do not write outside the box

5 Here are three number cards.



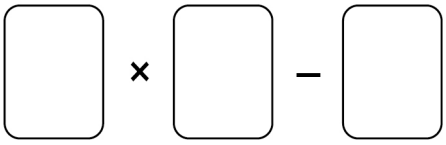
5 (a) Use all three cards to make the answer to this calculation a multiple of 10

[1 mark]



5 (b) Use all three cards to make the answer to this calculation a single-digit number.

[1 mark]



Do not write outside the box

5 (c) Use all three cards to make this a correct calculation.

[1 mark]

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

6 Gorkem wants to buy a computer that costs £449.50

He already has £135

He will save £18.50 each week.

In how many weeks will he have saved enough?

[3 marks]

Answer _____

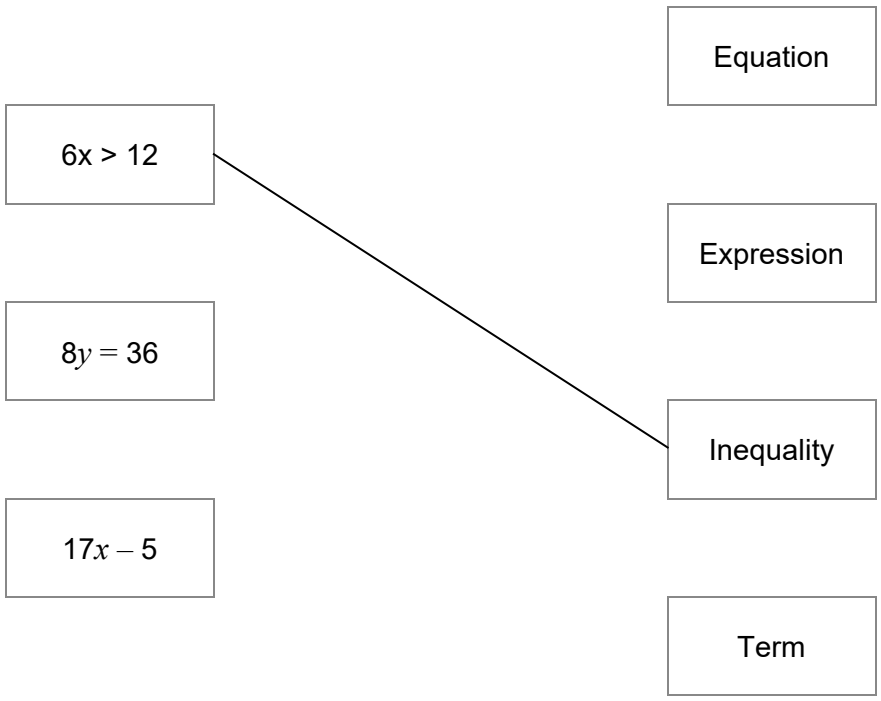
6

Do not write outside the box

7 Match the algebra to the correct description.

One has been done for you.

[2 marks]



Do not write outside the box

8 A board of directors is picked from these people.

Manager	Erika (E) Rob (R) Tina (T)
Worker	Alison (A) Laurence (L)

The board of directors **must** have one manager and one worker.

Complete this list to show **all** of the possible boards of directors.

[2 marks]

Manager	Worker
E	A

Turn over for the next question

4

Do not write outside the box

9 600 people attended a lecture.

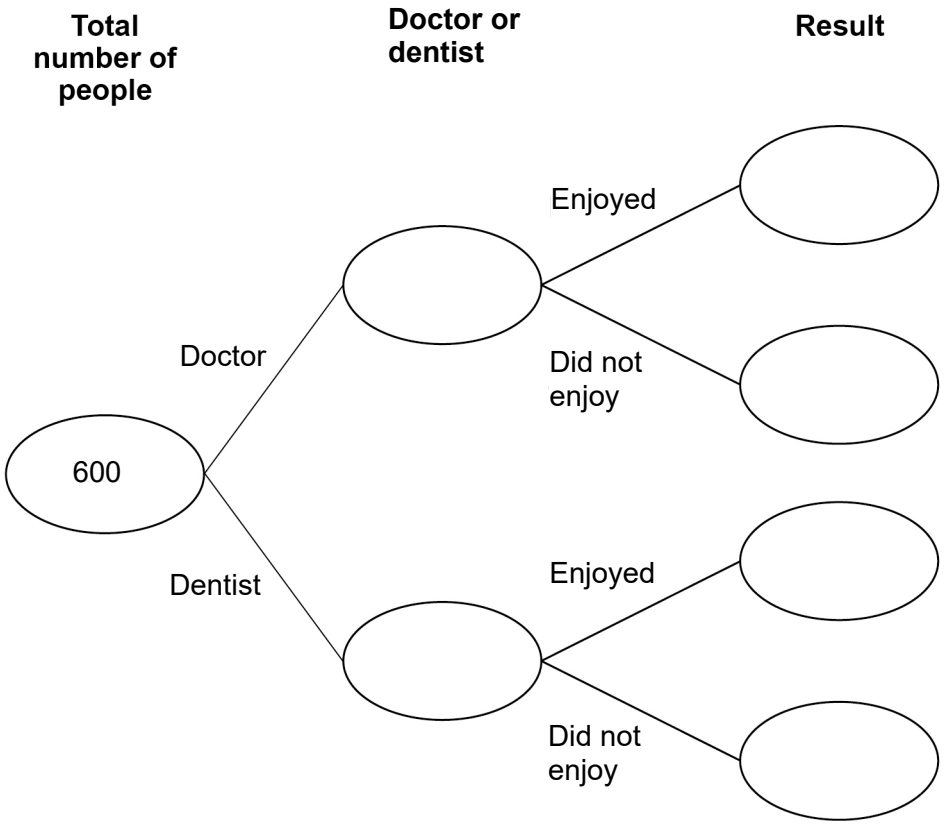
380 were doctors and the rest were dentists.

75% of the doctors enjoyed the lecture.

35 dentists did **not** enjoy the lecture.

Complete the frequency tree.

[5 marks]



Do not write outside the box

10 Put these three distances in order of size.

5.8 kilometres 5700 metres $5\frac{3}{4}$ kilometres

Start with the shortest.

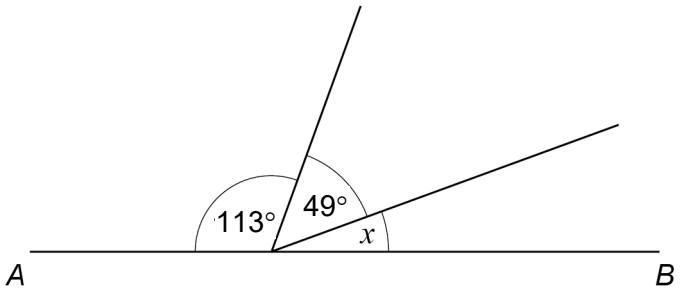
[2 marks]

Shortest distance _____

_____

Longest distance _____

11 *AB* is a straight line.



Not drawn accurately

Work out the size of angle x.

[2 marks]

Answer _____ degrees

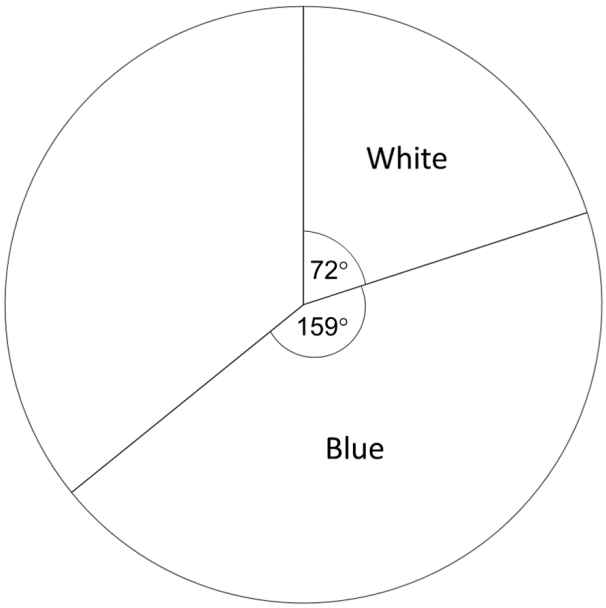
9

Turn over ►

Do not write outside the box

12 Some people were asked the main colour of the flag of their country.
Each answer was either White, Blue, Red or Green.

A pie chart is drawn to represent the answers.
Two of the sectors are shown.



12 (a) The number who answered Green is twice the number who answered Red.

Complete the pie chart.

[3 marks]

Do not write outside the box

12 (b) There were 6000 people altogether.

How many people answered Blue?

[2 marks]

Answer _____

13 Melanie has twice as many 20p coins as 10p coins.

The value of her 20p coins is £3.60

Work out the **total** value of her 20p and 10p coins.

[3 marks]

Answer £ _____

8

Do not write outside the box

14 Here are ticket prices for a fairground.

Single tickets	
Adult £32	Child £21
Special offer tickets	
1 adult and 2 children	£58
2 adults and 3 children	£101

14 (a) Faiza buys tickets for 3 adults and 5 children.
She pays the cheapest possible total cost.

How much does she save compared to buying all single tickets?

[4 marks]

Answer £ _____

Do not write outside the box

14 (b) Shirley buys 5 single adult tickets.

She uses a voucher that reduces the price of tickets by a quarter.

In total, how much does she pay?

[3 marks]

Answer £ _____

15 n is negative.

Circle the expression that is **negative**.

[1 mark]

$-(n-1)$ n^2 n^3 $\frac{1}{n^2}$

Turn over for the next question

8

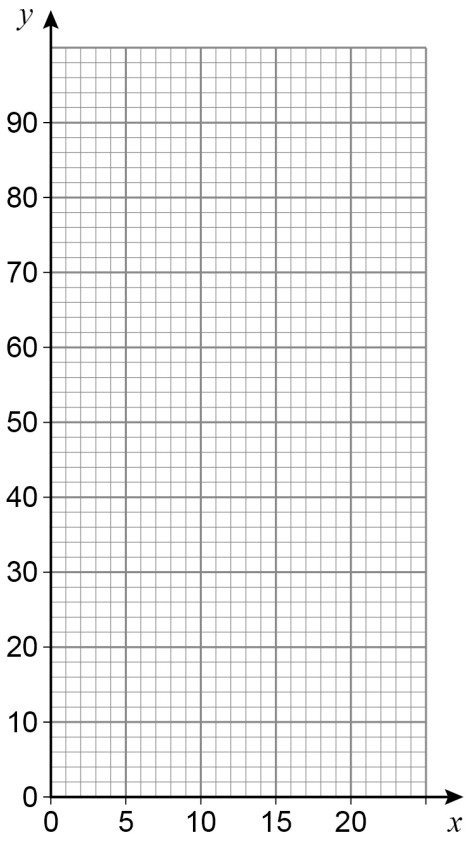
Do not write outside the box

16 Here is a formula.

$$y = 3.6x$$

16 (a) Draw the graph of $y = 3.6x$ for values of x from 0 to 20

[2 marks]



Do not write outside the box

In the formula $y = 3.6x$

y is speed in kilometres per hour (km/h)

x is speed in metres per second (m/s)

16 (b) Convert 65 km/h to m/s

Give your answer to the nearest whole number.

[1 mark]

Answer _____ m/s

16 (c) Convert 50 m/s to miles per hour.

Use 1 mile per hour = 1.61 km/h

[3 marks]

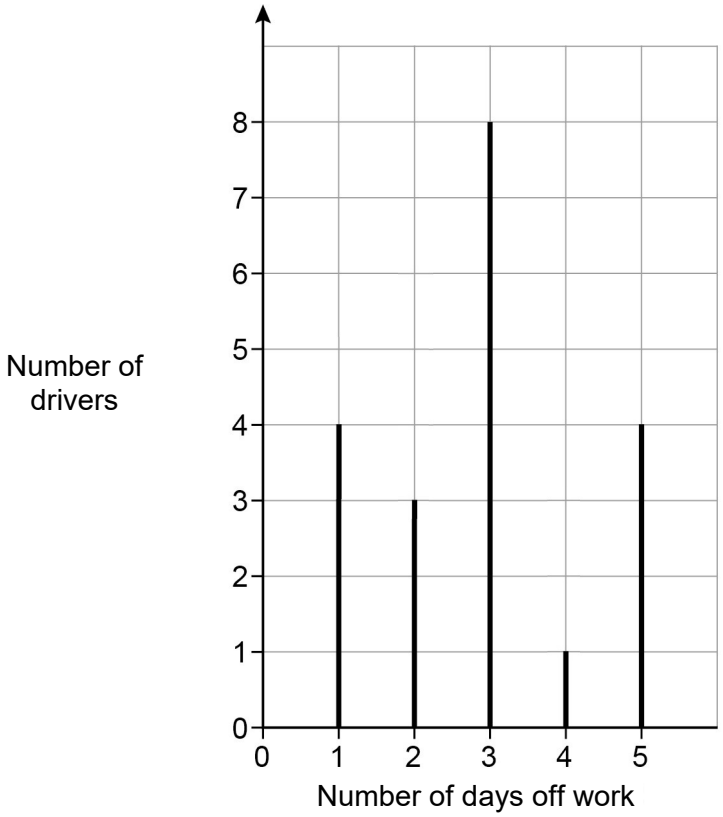
Answer _____ miles per hour

Turn over for the next question

6

Do not write outside the box

17 A record was kept of the number of days that 20 drivers were off work one week.
The chart represents the results.



17 (a) Work out the mean number of days off work.

[3 marks]

Answer _____

Do not write outside the box

17 (b) One of the drivers is chosen at random.

Work out the probability that the driver was off work for **less than** 3 days.

[2 marks]

Answer _____

18 Barbra has these notes.

Note	Number of notes
£5	3
£10	4
£20	x

The total value of her notes is £T

Write a formula for T in terms of x.

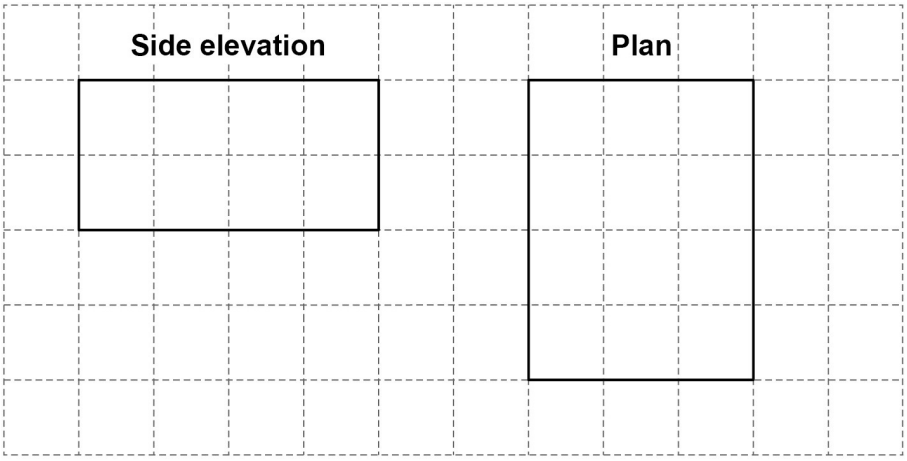
[2 marks]

Answer _____

7

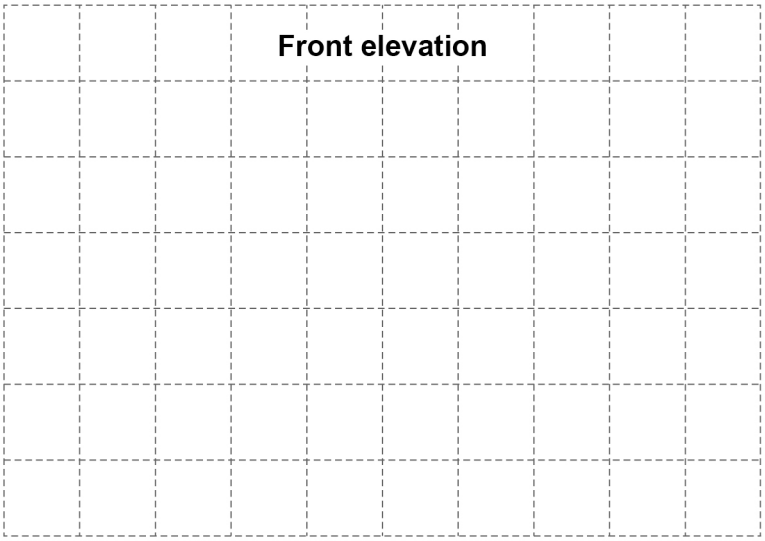
Do not write outside the box

19 The side elevation and plan of a cuboid are shown on the centimetre grid.



Draw the front elevation of the cuboid on this centimetre grid.

[2 marks]



Do not write outside the box

20 To the nearest 1000, there are 29 000 people at a festival.

20 (a) Write down the maximum possible number of people at the festival.

[1 mark]

Answer _____

20 (b) Write down the minimum possible number of people at the festival.

[1 mark]

Answer _____

21 Circle the equation of the line parallel to $y = 7x - 2$

[1 mark]

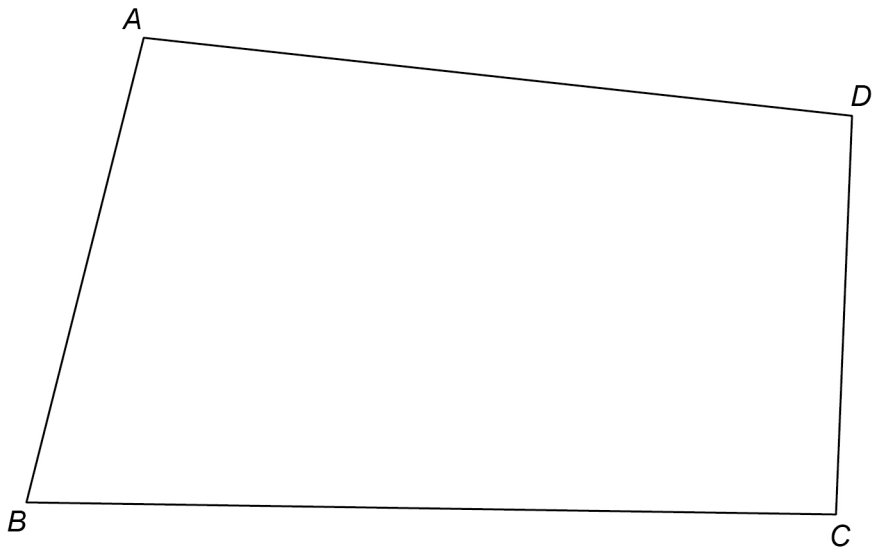
$y = 7x + 2$ $y = 2x - 7$ $y = -2x + 7$ $y = -7x - 2$

Turn over for the next question

5

Do not write outside the box

22 *ABCD* represents the plan of a field.



There is a path across the field that

starts at *C*

is the same distance from *BC* and *CD*.

Using ruler and compasses, show the position of the path.

[2 marks]

23 b is three times a.

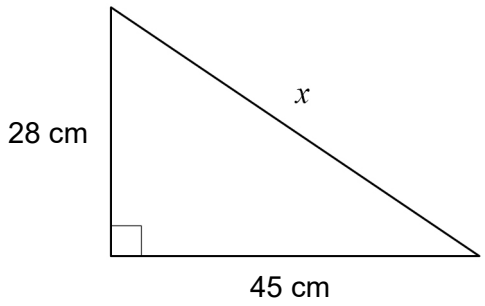
Circle the ratio $a : b$

[1 mark]

1 : 4 4 : 1 1 : 3 3 : 1

Do not write outside the box

24 Use Pythagoras' theorem to work out the value of x.



Not drawn accurately

[3 marks]

Answer _____ cm

Turn over for the next question

6

Do not write outside the box

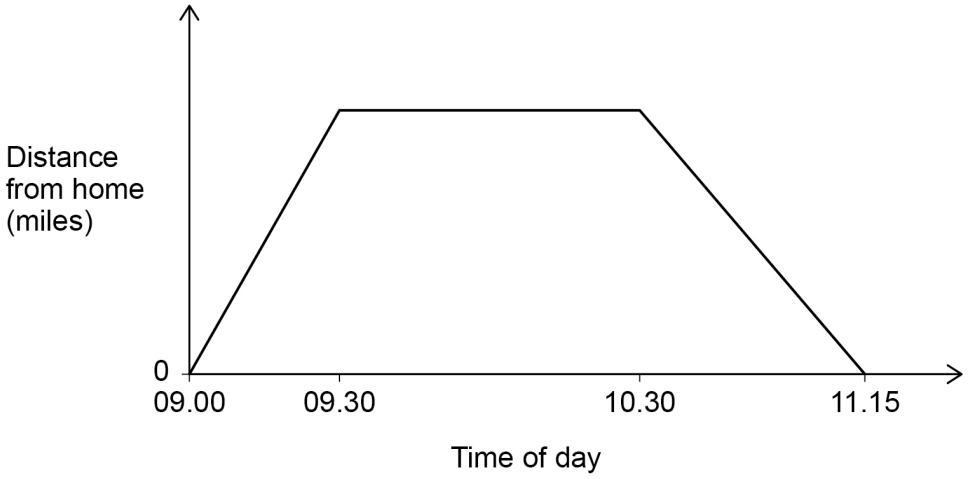
25 Colin visits a supermarket.

He drives to the supermarket in half an hour at a speed of 30 miles per hour.

He shops at the supermarket for one hour.

He then drives home.

The sketch graph represents his visit.



Work out the speed, in miles per hour, at which Colin drives home.

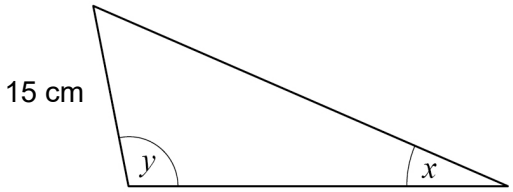
[3 marks]

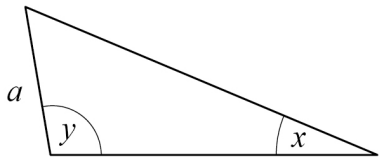
Answer _____ mph

Do not write outside the box

26 These two triangles are similar.

Not drawn accurately





Work out the value of a.

[2 marks]

Answer _____ cm

27 Circle the expression that is equivalent to $(x-2)^2$

[1 mark]

x^2-4 x^2+4 x^2+4x-4 x^2-4x+4

Turn over for the next question

6

Do not write outside the box

28 Here is some information about 30 homes.

a, b and c are all **different** numbers.

Number of pets	Number of homes
1	8
2	a
3	b
4	c
5	9

The median number of pets is 3.5

Work out a possible set of values for a, b and c.

[3 marks]

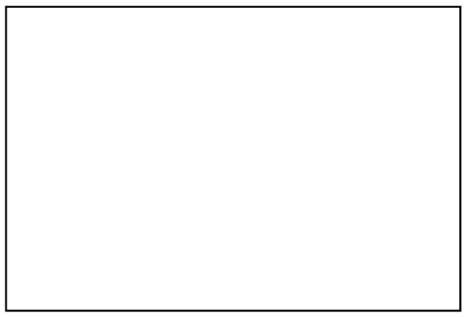
$a =$ _____

$b =$ _____

$c =$ _____

Do not write outside the box

29 A rectangle has length 80 cm and width 60 cm



Not drawn accurately

The length increases by 15%

The width increases by 25%

Suha says,

''The area increases by 40% because 15% + 25% is 40%''

Is she correct?

You **must** show calculations to support your answer.

[4 marks]

7

Turn over ►

Do not write outside the box

30 Expand and simplify fully $5(3x - 2) - (4x + 3)$

[2 marks]

Answer _____

31 $\mathbf{c} = \begin{pmatrix} 5 \\ 8 \end{pmatrix}$ $\mathbf{d} = \begin{pmatrix} -2 \\ 6 \end{pmatrix}$

Work out $2\mathbf{c} - 3\mathbf{d}$

[2 marks]

Answer ( )

END OF QUESTIONS

4