AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

# GCSE MATHEMATICS

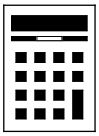
**F**

Foundation Tier Paper 3 Calculator

Monday 8 June 2020 Morning 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 6.2819 to 2 decimal places?

Circle your answer.

**[1 mark]**

6.2 | 6.28 | 6.29 | 6.3

**2** 50% of a number is 40

Circle the number.

**[1 mark]**

20 | 80 | 800 | 2000

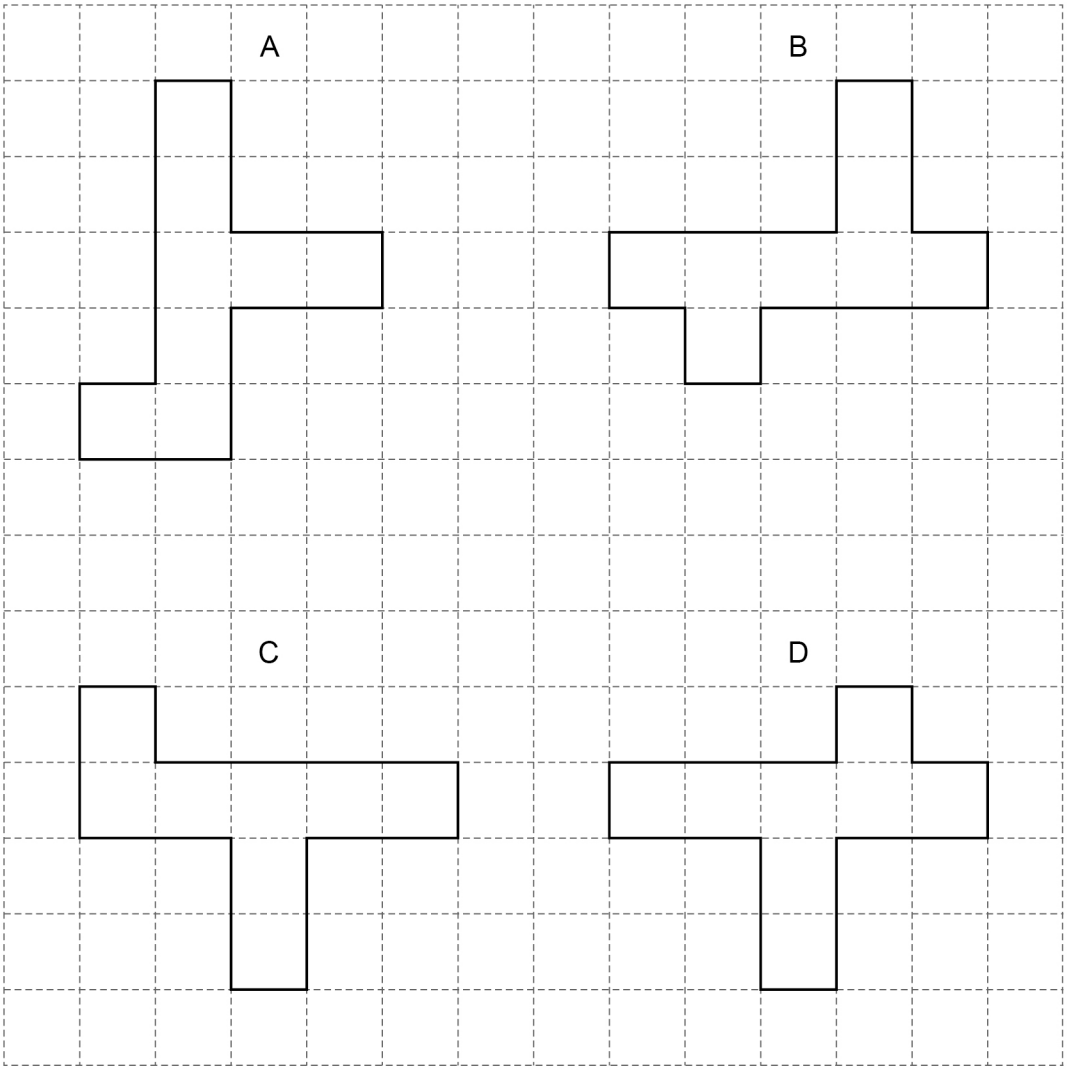
**3** Circle the correct statement.

**[1 mark]**

$0.07 \geqslant 0.7$ | $0.07 = 0.7$ | $0.07 < 0.7$ | $0.07 > 0.7$

*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]**

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

4

**Turn over ►**

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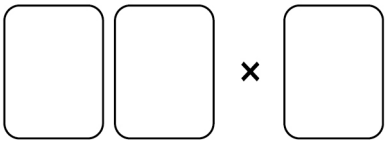
**5** Here are three number cards.

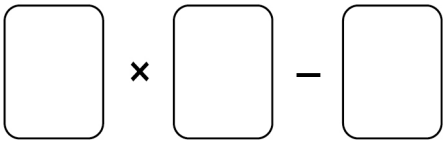

**5 (a)** Use all three cards to make the answer to this calculation a multiple of 10

**[1 mark]**




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

**[1 mark]**



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

**[1 mark]**

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

**6** Greg wants to buy a games console that costs £267.50

He already has £125

He will save £7.50 each week.

In how many weeks will he have saved enough?

**[3 marks]**

Answer _____

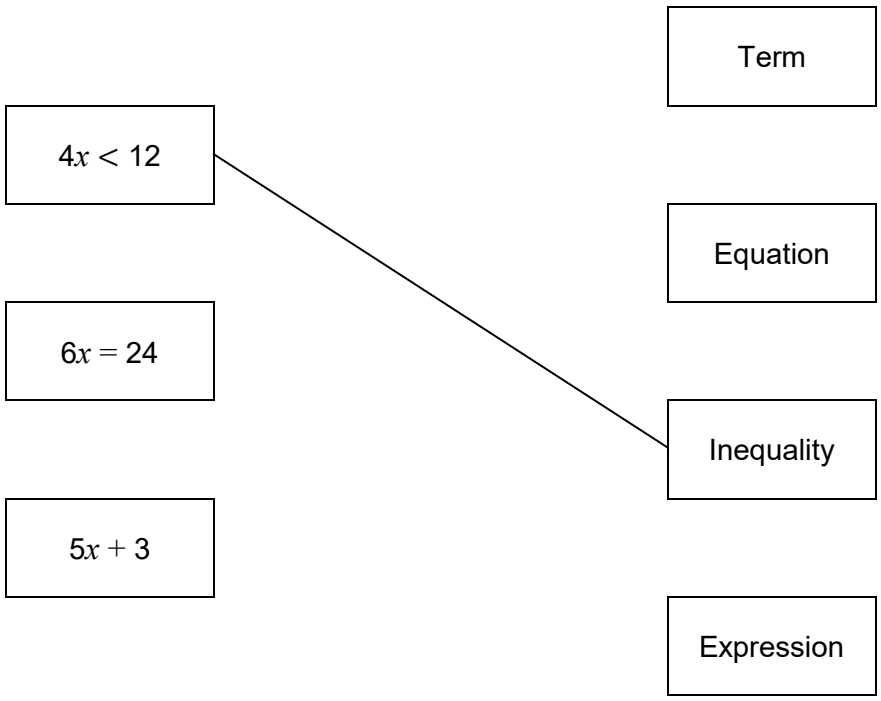
**6**

*Do not write outside the box*

**7** Match the algebra to the correct description.

One has been done for you.

**[2 marks]**



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**8** A team of two players is picked from these people.

| | |
|---|---|
| **Female** | Amy (A) Laura (L) |
| **Male** | Erik (E) Rob (R) Tim (T) |

The team **must** have one female player and one male player.

Complete this list to show **all** of the possible teams.

**[2 marks]**

| Female player | Male player |
|---|---|
| A | E |

**Turn over for the next question**

4

*Do not write outside the box*

**9** 500 people started a race.

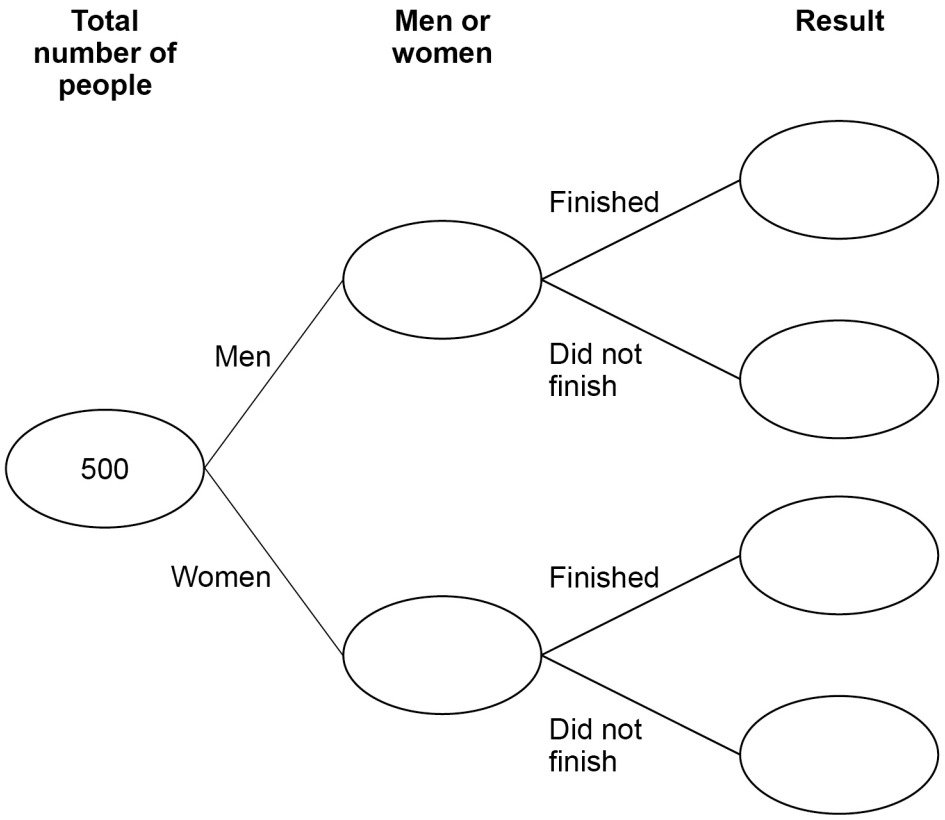
280 were men and the rest were women.

80% of the men finished the race.

30 women did **not** finish the race.

Complete the frequency tree.

**[5 marks]**



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**10** Put these three distances in order of size.

1.8 kilometres  1600 metres  $1\frac{3}{4}$ kilometres

Start with the shortest.

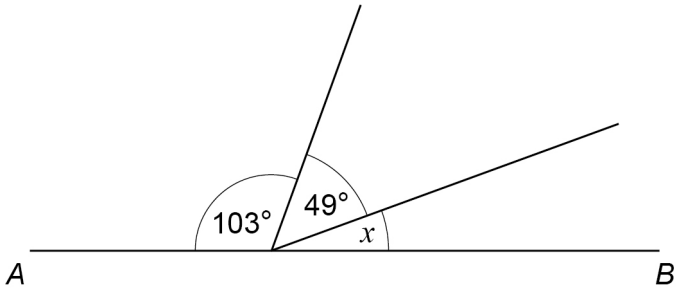
**[2 marks]**

Shortest distance _____

_____

Longest distance _____

**11** *AB* is a straight line.

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Work out the size of angle $x$.

**[2 marks]**

Answer _____ degrees

9

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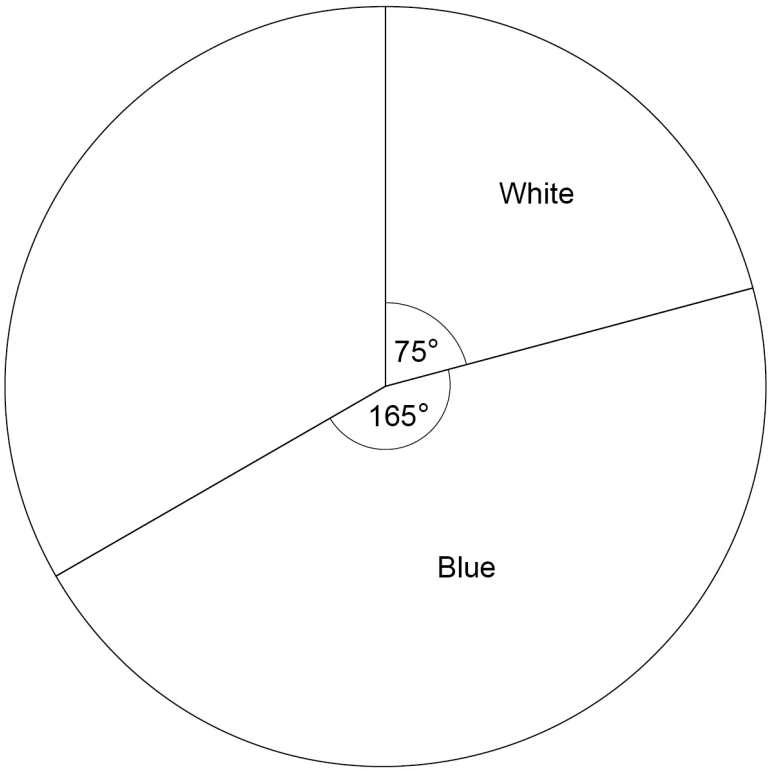
**12** Some players were asked the shirt colour of their football team.
Each answer was either White, Blue, Red or Green.

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




**12 (a)** The number who answered Red is three times the number who answered Green.

Complete the pie chart.

**[3 marks]**

*Do not write outside the box*

**12 (b)** There were 600 players altogether.

How many players answered White?

**[2 marks]**

Answer _____

**13** Milly has an equal number of 20p coins and 50p coins.

The value of her 20p coins is £2.80

Work out the **total** value of her 20p and 50p coins.

**[3 marks]**

Answer £ _____

8

*Do not write outside the box*

**14** Here are ticket prices for a theme park.

| **Single tickets** | |
|---|---|
| Adult £48 | Child £26 |
| **Special offer tickets** | |
| 1 adult and 2 children | £82 |
| 2 adults and 2 children | £120 |

**14 (a)** Freya buys tickets for 3 adults and 4 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)** Leroy buys 5 single adult tickets.

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

In total, how much does he pay?

**[3 marks]**

Answer £ _____

**15** $n$ is negative.

Circle the expression that is **positive**.

**[1 mark]**

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

**Turn over for the next question**

8

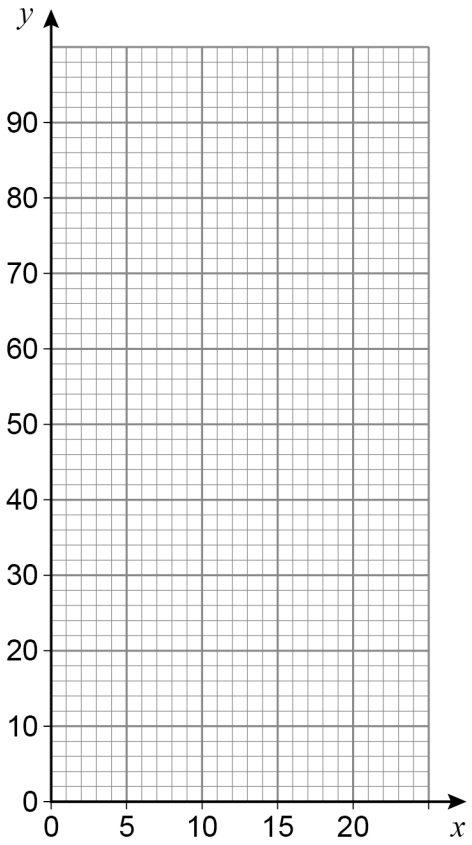
*Do not write outside the box*

**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 50 km/h to m/s

Give your answer to the nearest whole number.

**[1 mark]**

Answer _____ m/s

**16 (c)** Convert 30 m/s to miles per hour.

Use 1 mile per hour = 1.61 km/h

**[3 marks]**

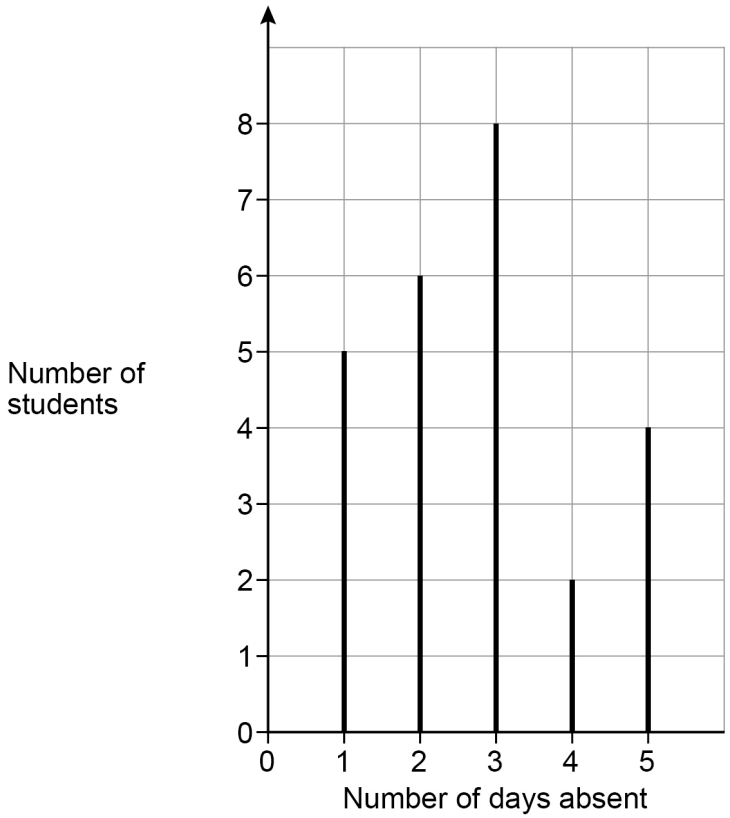
Answer _____ miles per hour

**Turn over for the next question**

6

**17** A record was kept of the number of days that 25 students were absent one term.

The chart represents the results.




**17 (a)** Work out the mean number of days absent.

**[3 marks]**

Answer _____

*Do not write outside the box*

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

Work out the probability that the student was absent for **less than** 4 days.

**[2 marks]**

Answer _____

**18** Bobbi has these notes.

| Note | Number of notes |
|---|---|
| £5 | 3 |
| £10 | $x$ |

The total value of her notes is £$T$

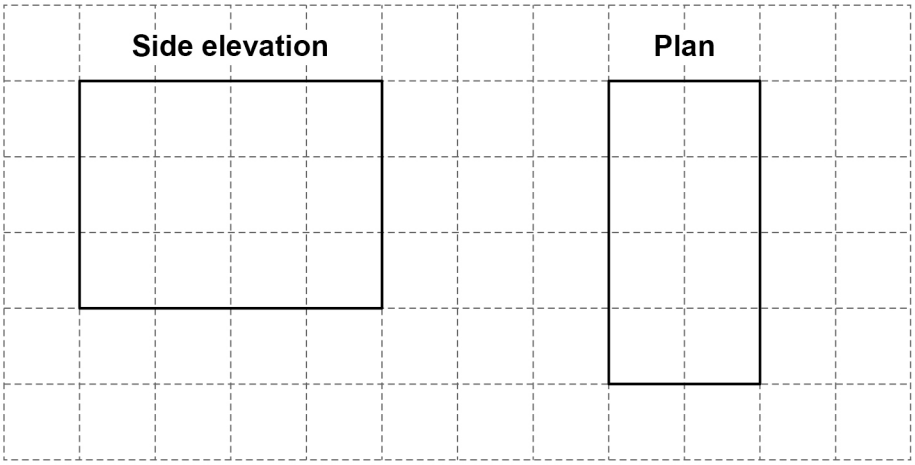
Write a formula for $T$ in terms of $x$.

**[2 marks]**

Answer _____

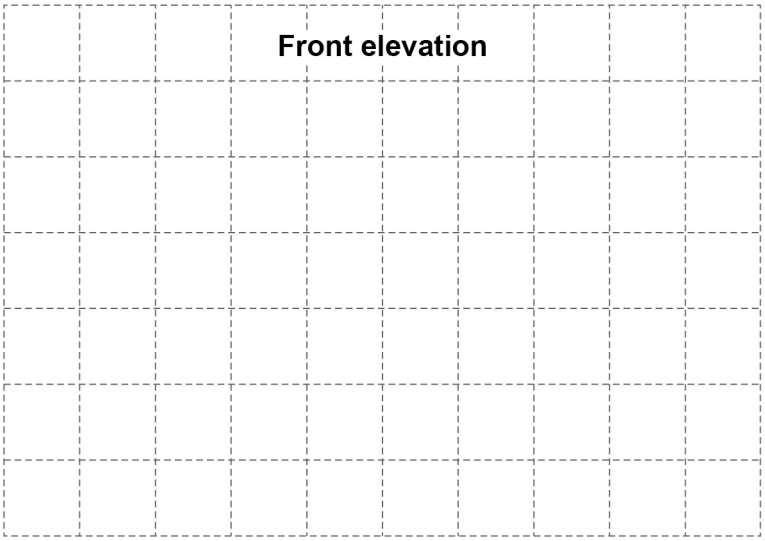
7

**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]**



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**20** To the nearest 1000, there are 18 000 people at a festival.

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

**[1 mark]**

Answer _____

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

**[1 mark]**

Answer _____

**21** Circle the equation of the line parallel to $y = 5x + 2$

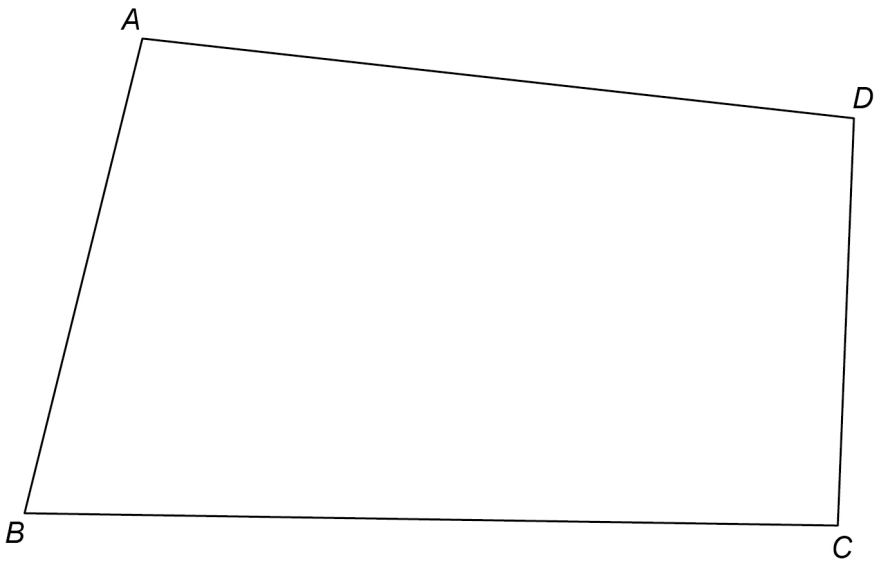
**[1 mark]**

$y = 2x + 5$ $y = 5x - 2$ $y = -5x + 2$ $y = -2x - 5$

**Turn over for the next question**

5

**22** *ABCD* represents the plan of a field.




There is a path across the field that

starts at *B*

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

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

**[2 marks]**

**23** $a$ is two times $b$.

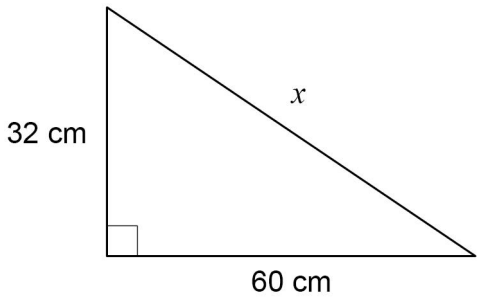
Circle the ratio $a : b$

**[1 mark]**

1 : 3 3 : 1 1 : 2 2 : 1

*Do not write outside the box*

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

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**[3 marks]**

Answer _____ cm

**Turn over for the next question**

6

*Do not write outside the box*

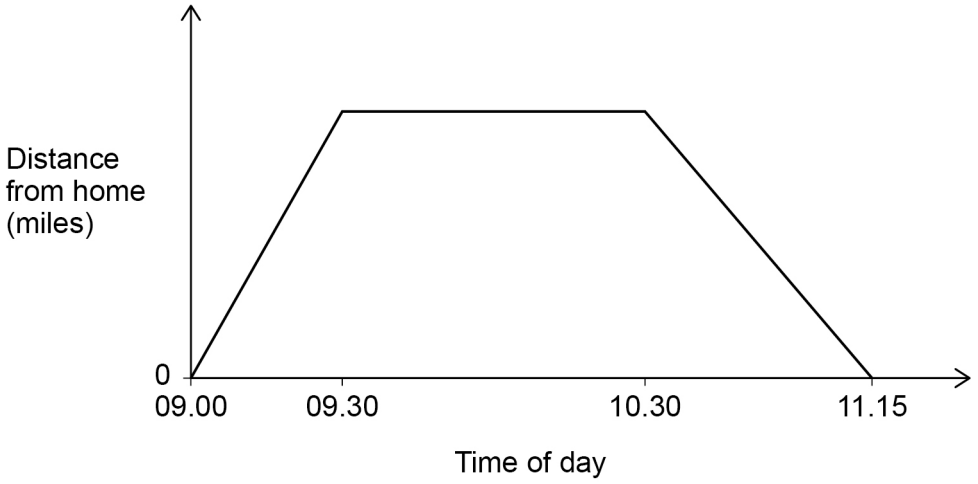
**25** Chris visits a library.

He cycles to the library in half an hour at a speed of 12 miles per hour.

He stays at the library for one hour.

He then cycles home.

The sketch graph represents his visit.




Work out the speed, in miles per hour, at which Chris cycles home.

**[3 marks]**

Answer _____ mph

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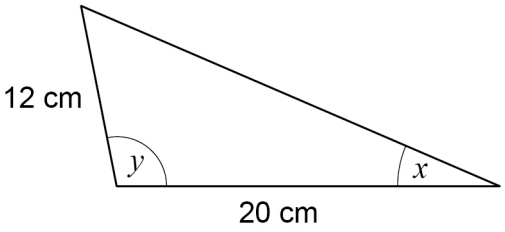
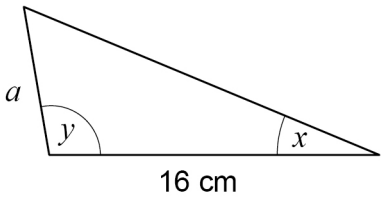
**26** These two triangles are similar.

Not drawn accurately




Work out the value of $a$.

**[2 marks]**

Answer _____ cm

**27** Circle the expression that is equivalent to $(x-1)^2$

**[1 mark]**

$x^2-1$ $x^2+1$ $x^2-2x-1$ $x^2-2x+1$

**Turn over for the next question**

6

**28** Here is some information about 26 houses.

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

| Number of bedrooms | Number of houses |
|---|---|
| 1 | 7 |
| 2 | $a$ |
| 3 | $b$ |
| 4 | $c$ |
| 5 | 8 |

The median number of bedrooms is 3.5

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

**[3 marks]**

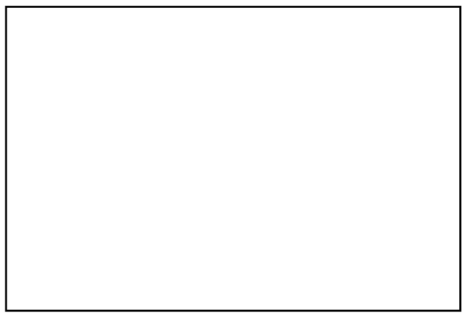
$a =$ _____

$b =$ _____

$c =$ _____

*Do not write outside the box*

**29** A rectangle has length 60 cm and width 40 cm

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The length decreases by 15%

The width decreases by 10%

Sue says,

"The perimeter decreases by 25% because 15% + 10% is 25%"

Is she correct?

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

**[4 marks]**

7

*Do not write outside the box*

**30** Expand and simplify fully $4(2c + 3) - (5c - 1)$

**[2 marks]**

Answer _____

**31** $\mathbf{c} = \begin{pmatrix} 4 \\ 9 \end{pmatrix}$ $\mathbf{d} = \begin{pmatrix} 2 \\ -5 \end{pmatrix}$

Work out $4\mathbf{c} + 3\mathbf{d}$

**[2 marks]**

Answer ( )

**END OF QUESTIONS**

4

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