

Please write clearly, in block capitals.

Centre number

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Candidate number

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Surname

Forename(s)

Candidate signature

GCSE MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

Exam Date

Morning

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments

You must **not** use a calculator.



Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- 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.
- 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.

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

1 (a) What is $\frac{1}{5}$ as a percentage?

Circle your answer.

[1 mark]

1.5%

5%

15%

20%

1 (b) What is 0.9 as a percentage?

Circle your answer.

[1 mark]

0.009%

0.09%

9%

90%

2 There are 20 students.
12 are boys.

What fraction are boys?

Circle your answer.

[1 mark]

$\frac{2}{3}$

$\frac{2}{5}$

$\frac{3}{5}$

$\frac{3}{4}$

3 Simplify $7x + 5 - 8 - 3x$

Circle your answer.

[1 mark]

x

$4x + 3$

$4x - 3$

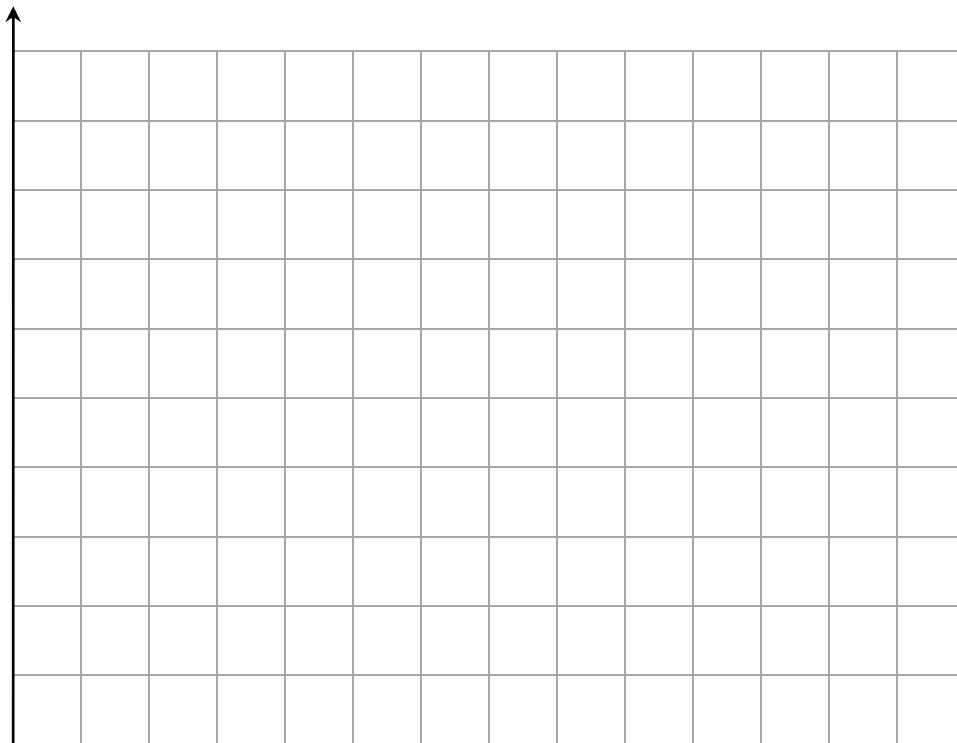
$10x - 3$

4 The table shows how 25 students travel to school.

Walk	Bus	Car	Taxi
9	8	7	1

Draw a bar chart to show this information.

[4 marks]

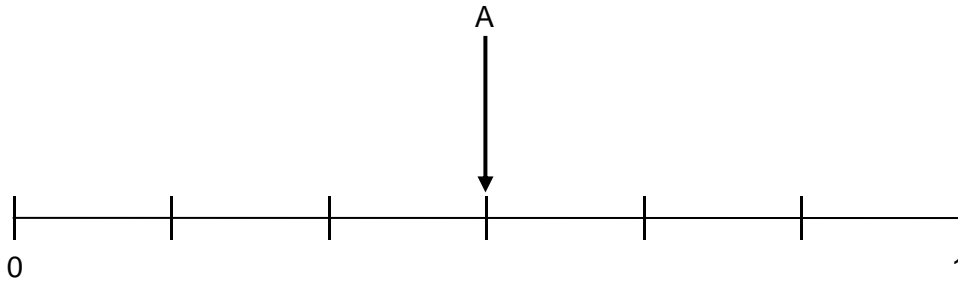


5 Here are three events for an ordinary fair dice.

- A Roll an odd number
- B Roll a number greater than 6
- C Roll an even number less than 3

Draw and label arrows to show the probabilities of events B and C on the probability scale.

[2 marks]



6 Work out $23.7 - 2.5 \times 8$

[2 marks]

Answer _____

7 Write these numbers in order starting with the smallest.

[1 mark]

2.303

2.3

2.33

2.03

Answer _____

- 8 There are 25 counters in a bag.
12 are red, 5 are green and the rest are white.
A counter is chosen at random.
Work out the probability that it is white.

[2 marks]

Answer _____

- 9 110 students go on a school trip.
Each student needs a bottle of water.



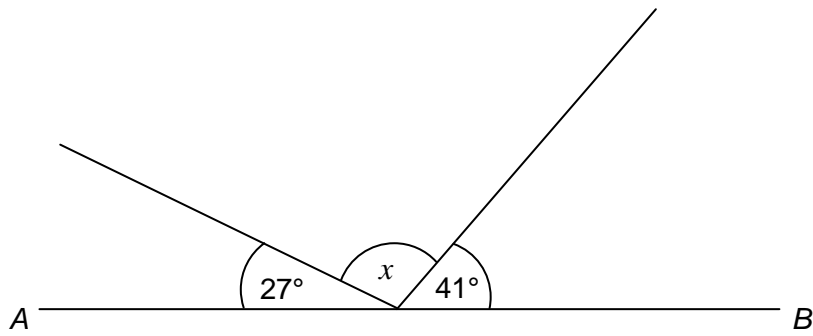
Pack of 6

How many of these packs are needed?

[3 marks]

Answer _____

10

Not drawn
accurately

AB is a straight line.

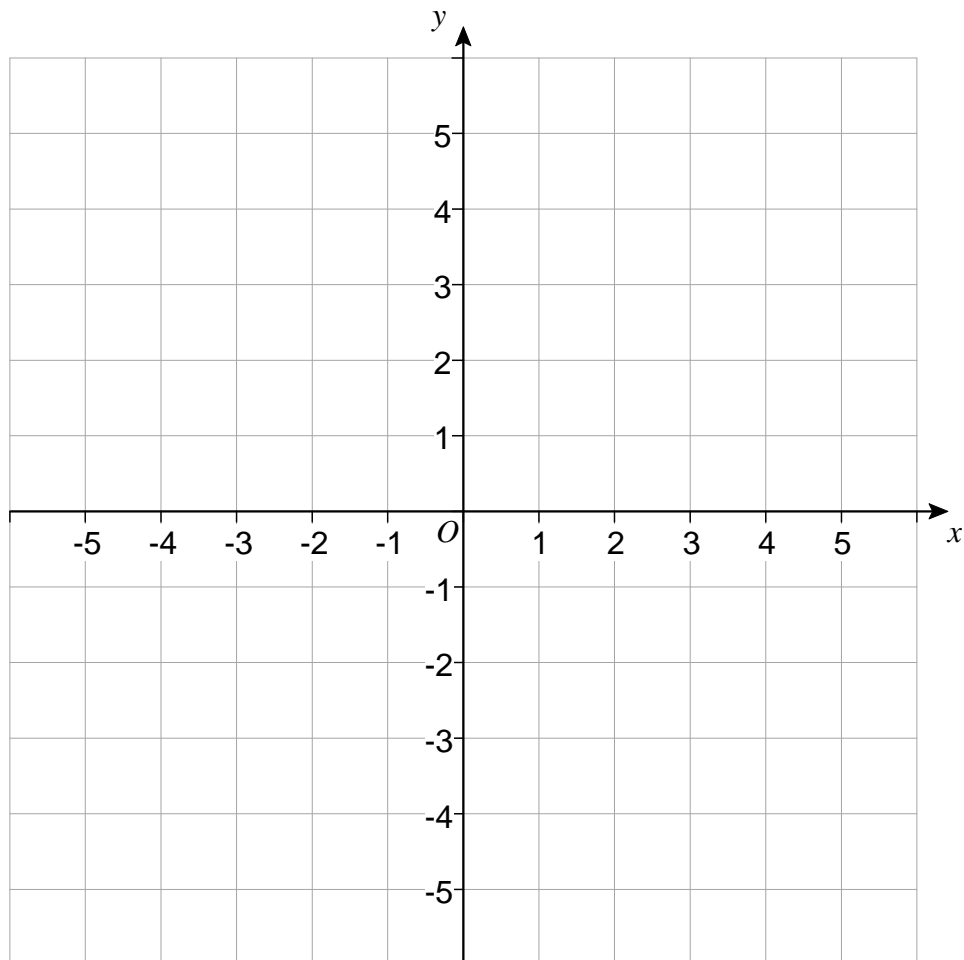
Work out the size of angle x .

[2 marks]

Answer _____ degrees

Turn over for the next question

11 Here is a centimetre grid.



$A(3, 5)$, $B(0, -3)$ and $C(-5, 2)$ are three points.

What type of triangle is ABC ?

You **must** show your working, which may be on the diagram.

[2 marks]

Answer _____

12 (a) Circle the value of 2^4

[1 mark]

6

8

16

24

12 (b) Circle the value of 5^3

[1 mark]

15

25

53

125

12 (c) Circle the value of $\sqrt{196}$

[1 mark]

13

14

16

98

13 Solve $4x - 5 = 17$

[2 marks]

$x =$ _____

14 Jon has 78p
Nat has £3.52

Nat gives Jon some money so that they both have the same amount.

How much does Nat give Jon?

[2 marks]

Answer £ _____

15

A cinema has

37 rows of seats

23 seats in each row.

Adult tickets are £8 each.

Child tickets are £6 each

The cinema has sold tickets for every seat.

The manager estimates that £6400 was raised from these tickets.

200 child tickets were sold.

Check whether the manager's estimate was close to the exact amount of money raised.

[6 marks]

16 Here is a map of France.



Scale: 1 cm represents 80 km

16 (a) What is the three-figure bearing of Lyon from Bordeaux?

Circle your answer.

[1 mark]

005°

085°

095°

175°

16 (b) Work out the actual straight-line distance from Paris to Marseille.

[2 marks]

Answer _____ km

Turn over for the next question

17 Here is some information about a group of children.

	Boys	Girls
Left-handed	3	8
Right-handed	12	20

17 (a) Write down the number of left-handed girls to right-handed girls as a ratio.
Give your answer in its simplest form.

[1 mark]

Answer _____ :

17 (b) What percentage of the boys are left-handed?

[2 marks]

Answer _____ %

18 Liam says,

“If you divide any multiple of 10 by 2 the answer **always** ends in 5”

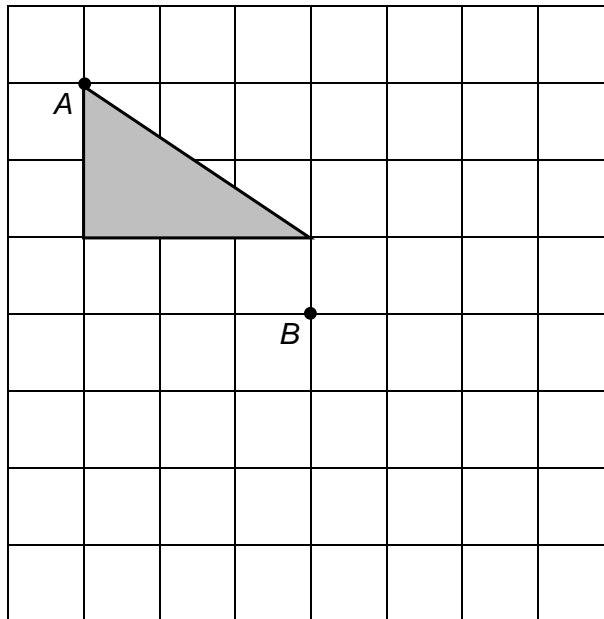
Is he correct?

Write down a calculation to support your answer.

[1 mark]

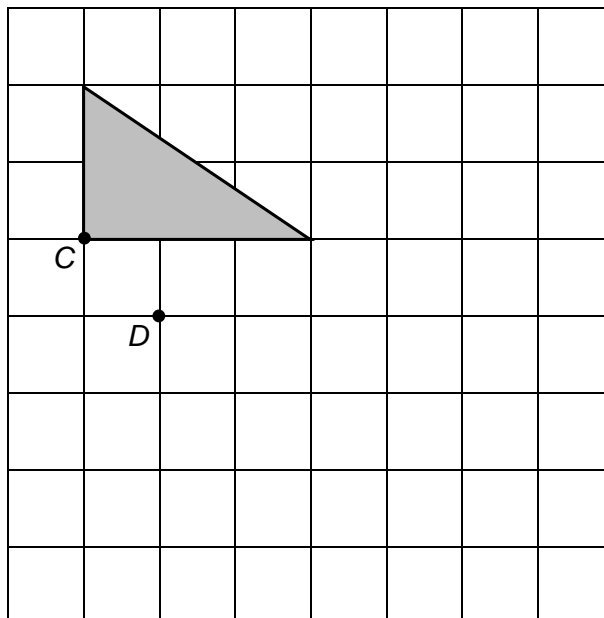
- 19 (a) Translate the triangle so that point A moves to point B .

[1 mark]



- 19 (b) Rotate the triangle 90° clockwise so that point C moves to point D .

[2 marks]



20 Here is a formula.

$$V = \frac{1}{2}x^2h$$

Work out the value of V when $x = 11$ and $h = 6$

[2 marks]

Answer _____

21 Diaries are sold in boxes of 12
Pencils are sold in boxes of 10
Rulers are sold in boxes of 6

A teacher wants to buy the same number of diaries, pencils and rulers.

Work out the **smallest** number of boxes of each item he could buy.

[3 marks]

_____ boxes of diaries

_____ boxes of pencils

_____ boxes of rulers

22 Which of $\frac{2}{5}$ or $\frac{5}{8}$ is closer in value to $\frac{1}{2}$?

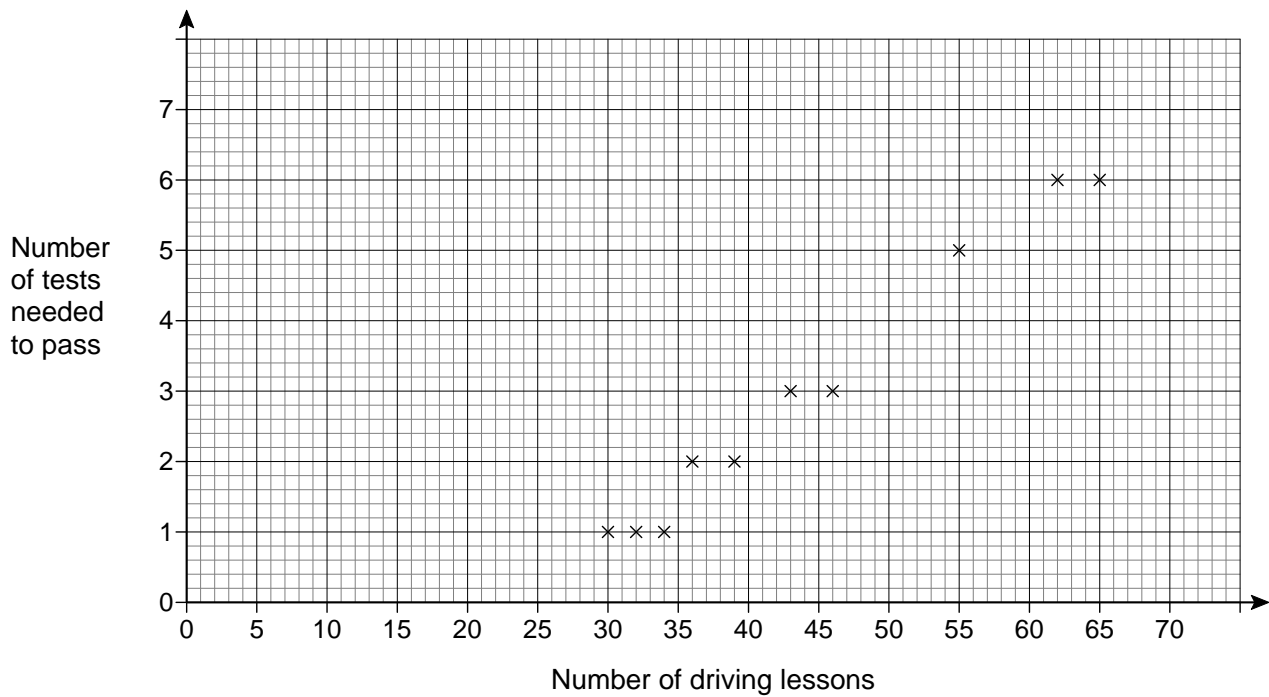
You **must** show your working.

[3 marks]

Answer _____

Turn over for the next question

- 23** The scatter graph shows the number of driving lessons and the number of tests needed to pass by 10 people.



- 23 (a)** What proportion of the 10 people passed on their first test?

[1 mark]

Answer _____

- 23 (b)** Describe the correlation.

Circle your answer.

[1 mark]

strong positive

weak positive

weak negative

strong negative

- 23 (c)** Use a line of best fit to estimate the number of tests needed to pass by a person who has 50 lessons.

[2 marks]

Answer _____

- 23 (d)** Meera says,

“I can use the trend to predict the number of driving tests needed to pass for any number of driving lessons.”

Comment on her statement.

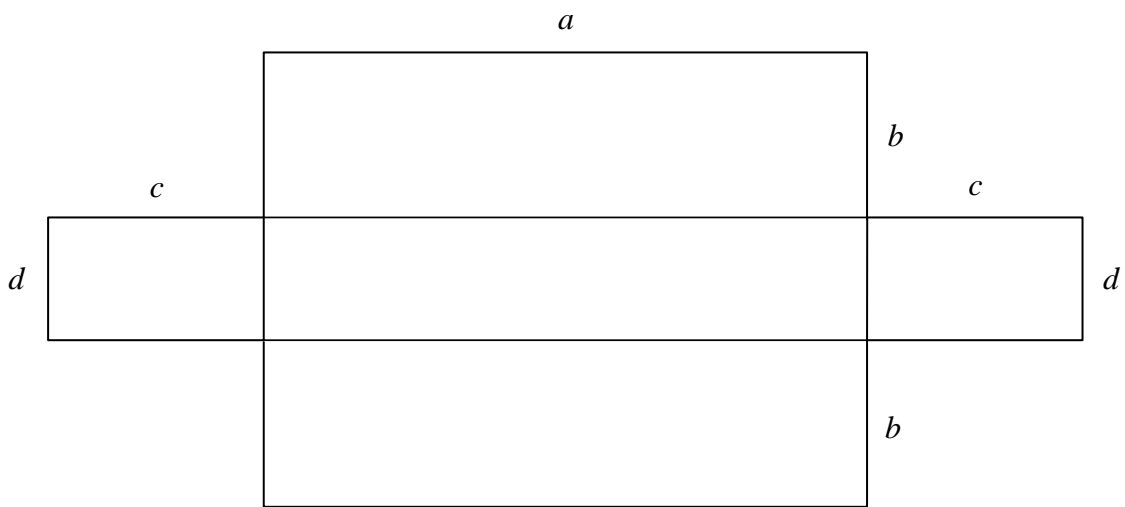
[1 mark]

Turn over for the next question

24 A shape is made from rectangles.

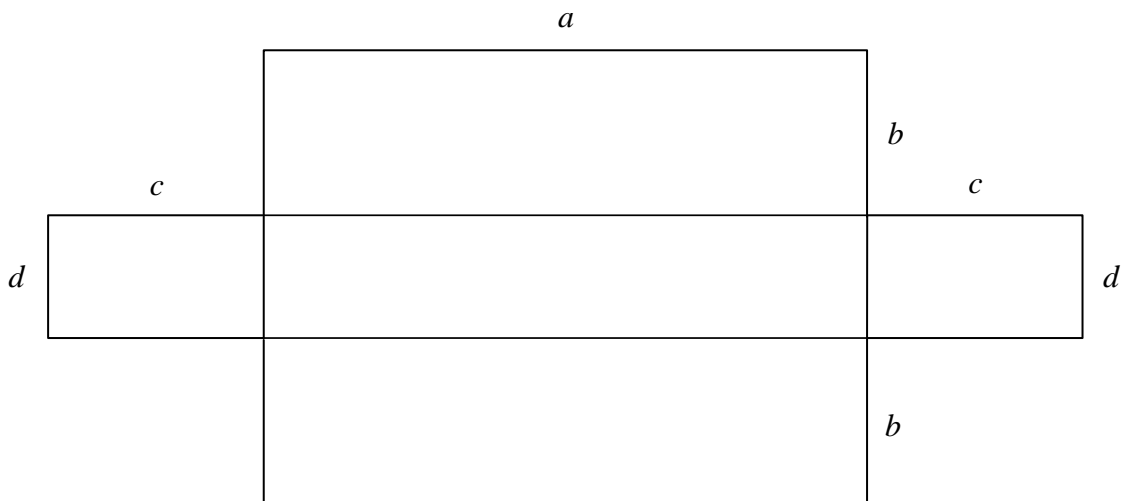
24 (a) On the diagram below shade an area represented by the expression ab

[1 mark]

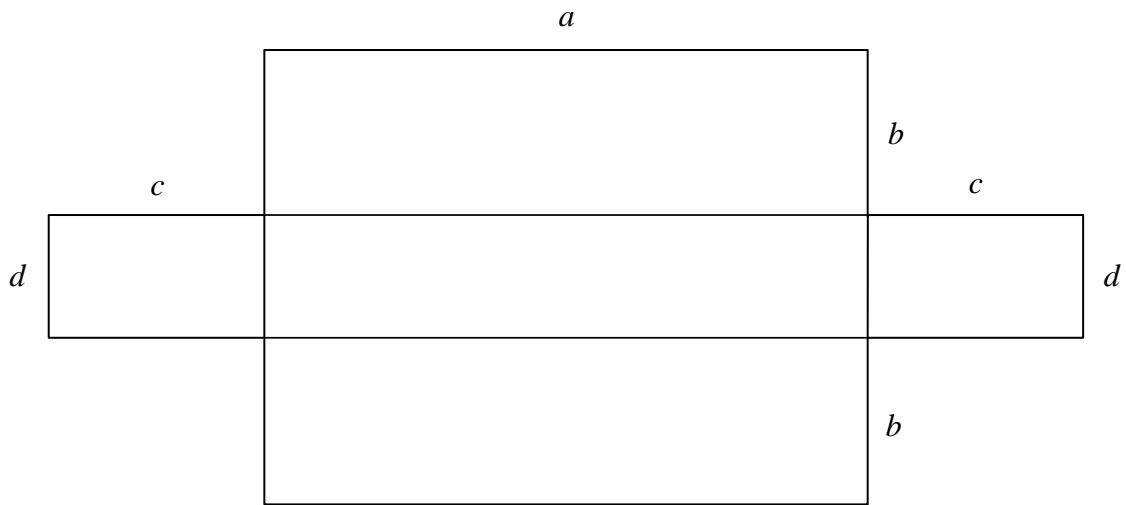


24 (b) On the diagram below shade an area represented by the expression $ad + cd$

[1 mark]

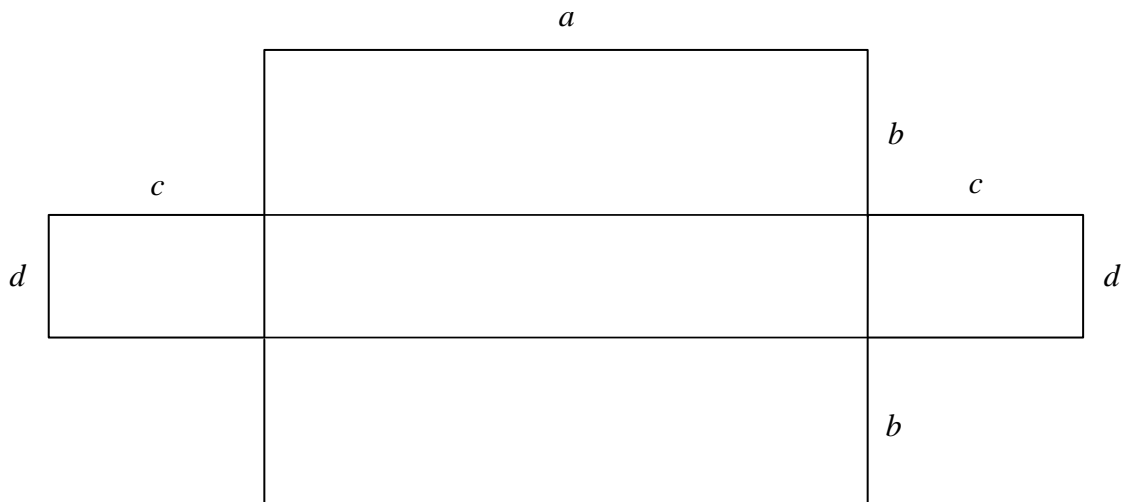


- 24 (c) On the diagram below shade the area represented by the expression $d(a + 2c)$ [1 mark]



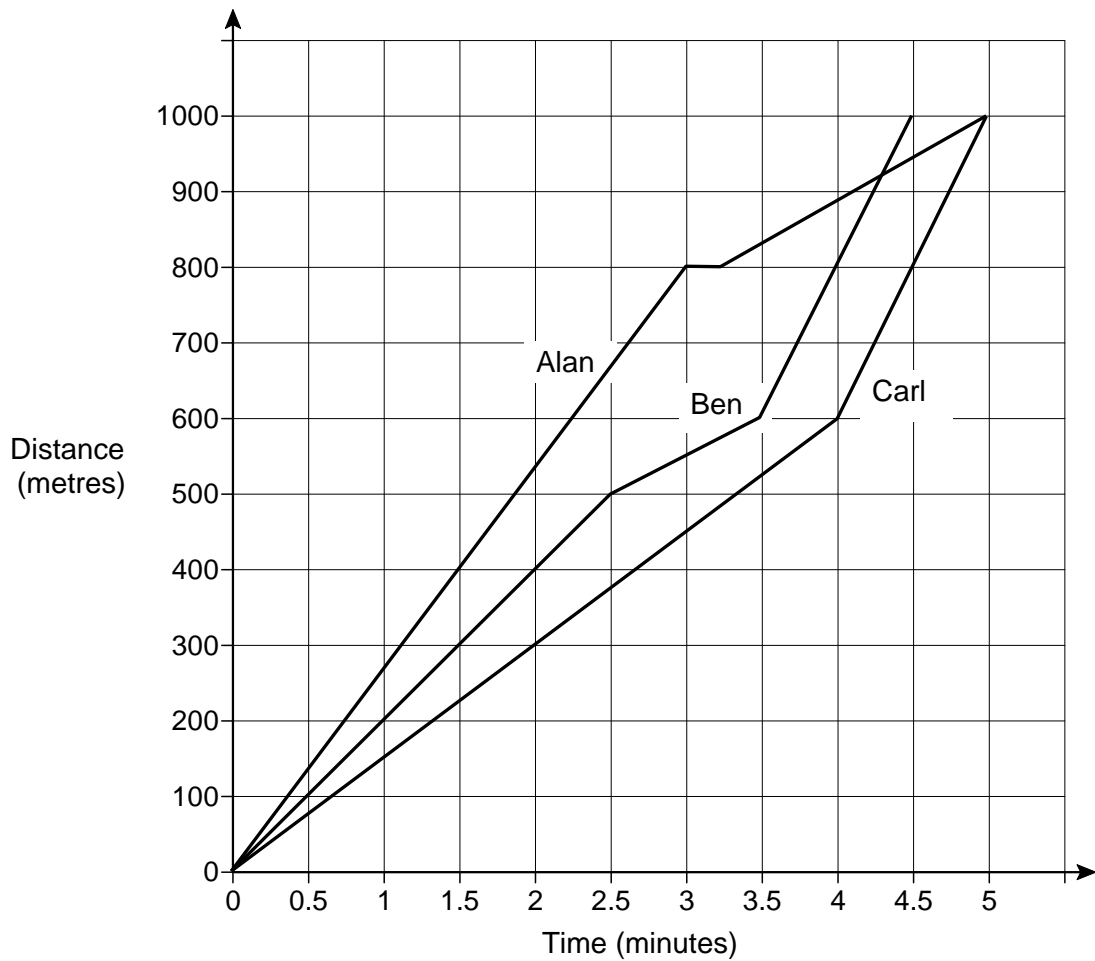
- 24 (d) Write down an expression for the area of the whole shape.

[1 mark]



Answer _____

- 25** Alan, Ben and Carl ran a 1000 metre race.
The distance-time graph shows the race.



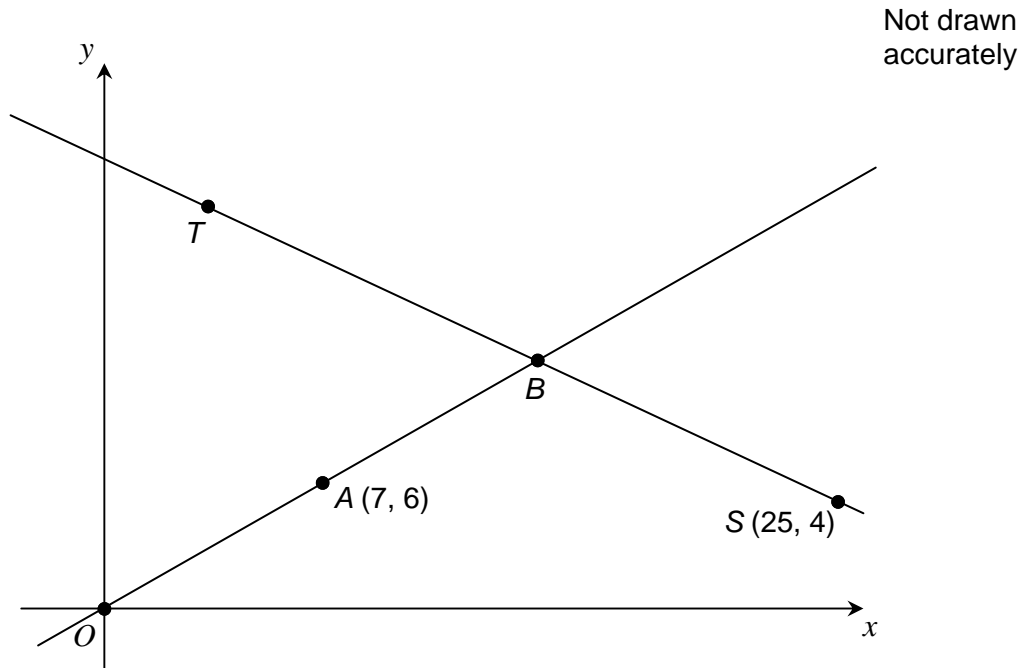
- 25 (a)** Who won the race?
Give a reason for your answer.

[1 mark]

Answer _____

Reason _____

- 26** Two straight lines are shown.
 A is the midpoint of OB .
 B is the midpoint of TS .



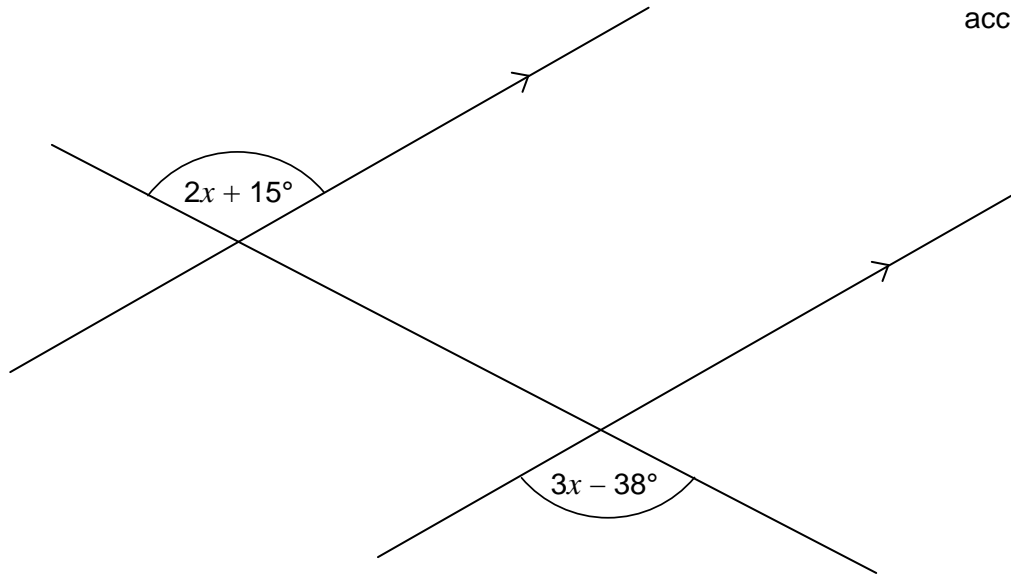
Work out the coordinates of T .

[3 marks]

Answer (_____ , _____)

27

Three straight lines are shown.

Not drawn
accuratelyWork out the value of x .**[3 marks]**

Answer _____

Turn over for the next question

28

$$2x + 3y = 15.5$$

$$x + y = 6$$

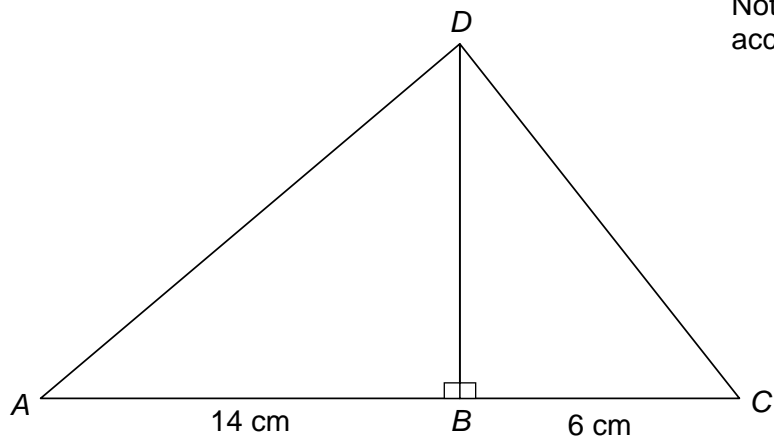
Work out the values of x and y .

[3 marks]

$$x = \underline{\hspace{10em}}$$

$$y = \underline{\hspace{10em}}$$

- 29 In the diagram the area of triangle ABD is 56 cm^2



Not drawn
accurately

Work out the length of CD .

[4 marks]

Answer _____ cm

END OF QUESTIONS

There are no questions printed on this page

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