GCSE
Mathematics
Specification (8300/1F)

F

Paper 1 Foundation tier

Date Morning 1 hour 30 minutes

Materials

For this paper you must have: • mathematical instruments You may **not** use a calculator	

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the bottom of this page.
- Answer **all** questions.
- You must answer the questions in the space 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 that you do not want to be marked.
- In all calculations, show clearly how you work out your answer.

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 booklet.

Please write clearly, in block capitals, to allow character computer recognition.

Centre number ☐☐☐☐☐ Candidate number ☐☐☐☐

Surname ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Forename(s) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Candidate signature _____

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 $x + 8x - 3x$

Circle your answer.

[1 mark]

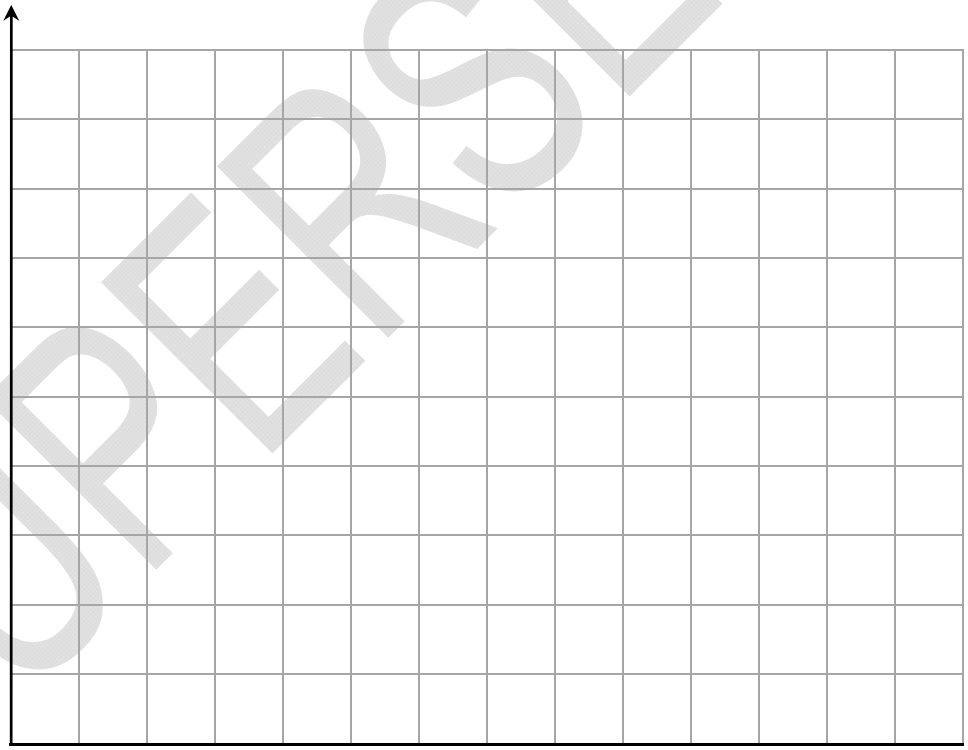
$5x$ $6x$ $7x$ $12x$

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.

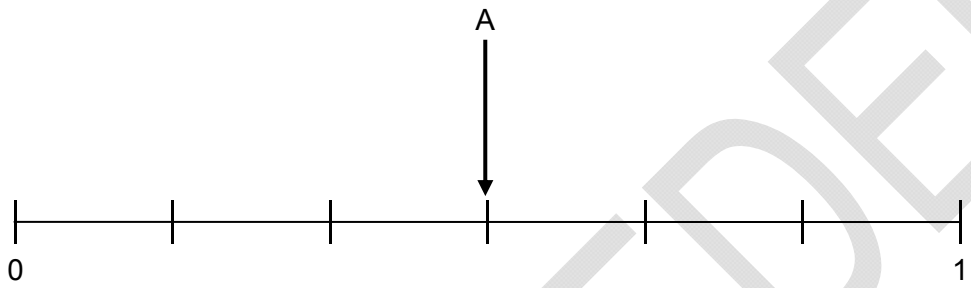
A Roll an odd number

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]

2.3 2.33 2.03

Answer _____ _____ _____

8 There are 20 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 On a school trip at least 1 teacher is needed for every 8 students.

Work out the **minimum** number of teachers for 130 students.

[3 marks]

Answer _____

10

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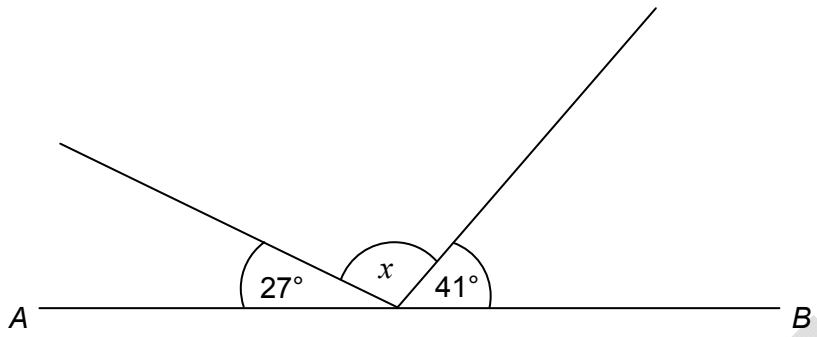


AB is a straight line.

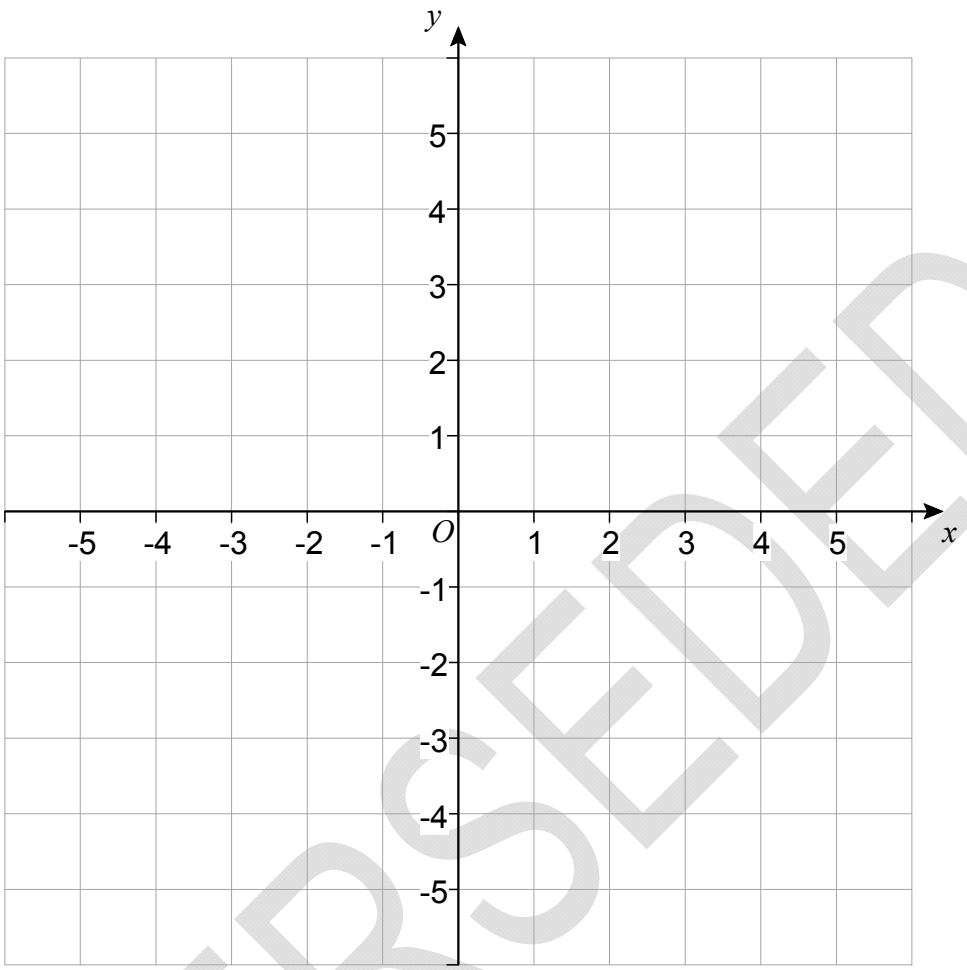
Work out the size of angle x.

[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 $\sqrt{144}$

[1 mark]

12 14 72 288

13 Solve $4x - 3 = 17$

[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.

Tickets are £8 each.

The cinema has sold tickets for every seat.

15 (a) The manager estimates that £6400 was made from these tickets.

Use approximations to show how the manager did this.

[1 mark]

15 (b) Work out the exact amount of money raised from ticket sales.

[4 marks]

Answer £ _____

15 (c) Use your answer to part (b) to check whether the manager's estimate was sensible.

[1 mark]

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,

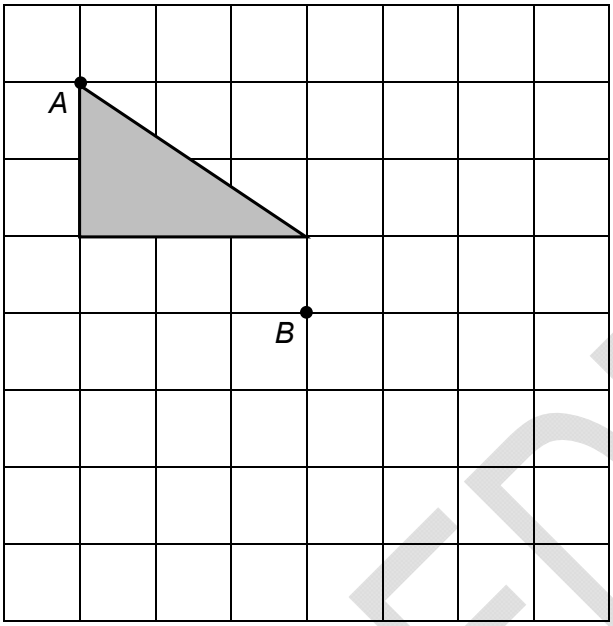
"If you divide any multiple of 10 by 2 the answer **always** ends in 5"

Is he correct?
Write down a calculation to support your answer.

[1 mark]

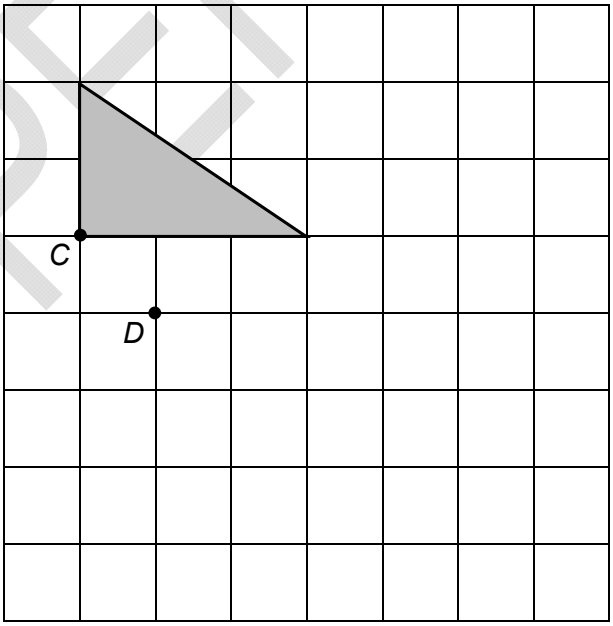
19 (a) Translate the triangle so that point *A* moves to point *B*.

[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 $\frac{1}{2}$?

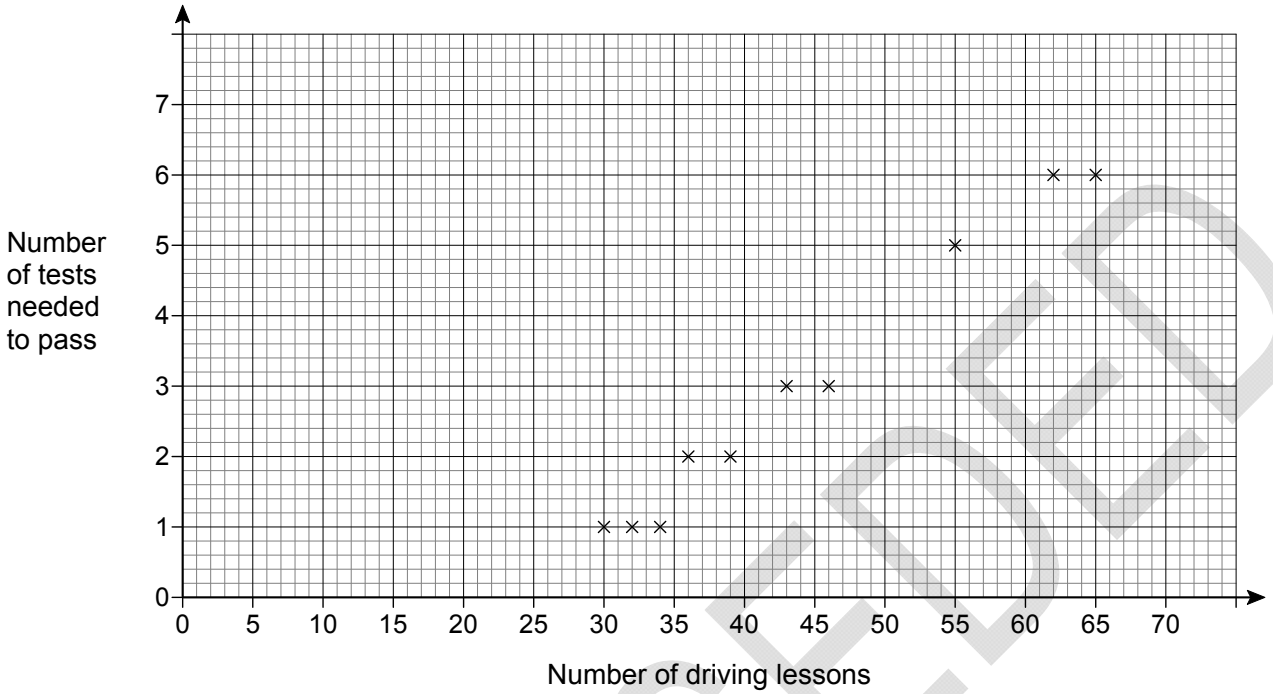
You **must** show your working.

[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.

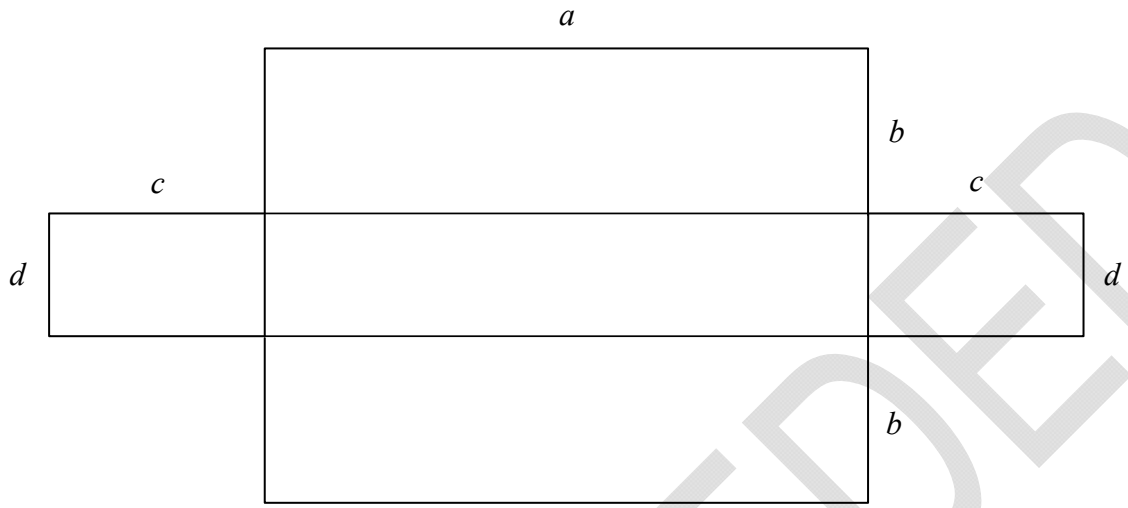
[1 mark]

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]

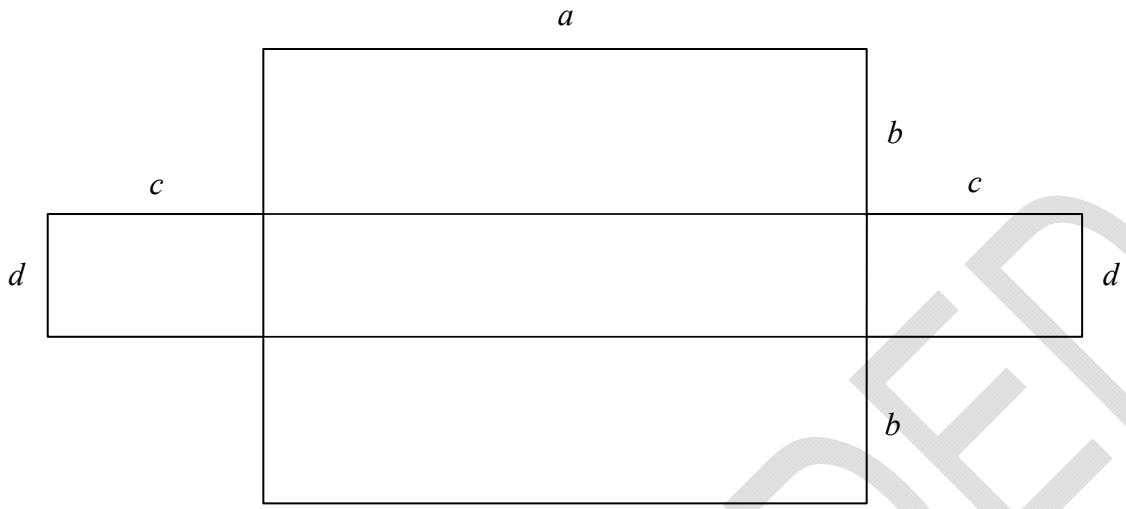


24 (b) On the diagram below shade an area represented by the expression $ad + cd$

[1 mark]

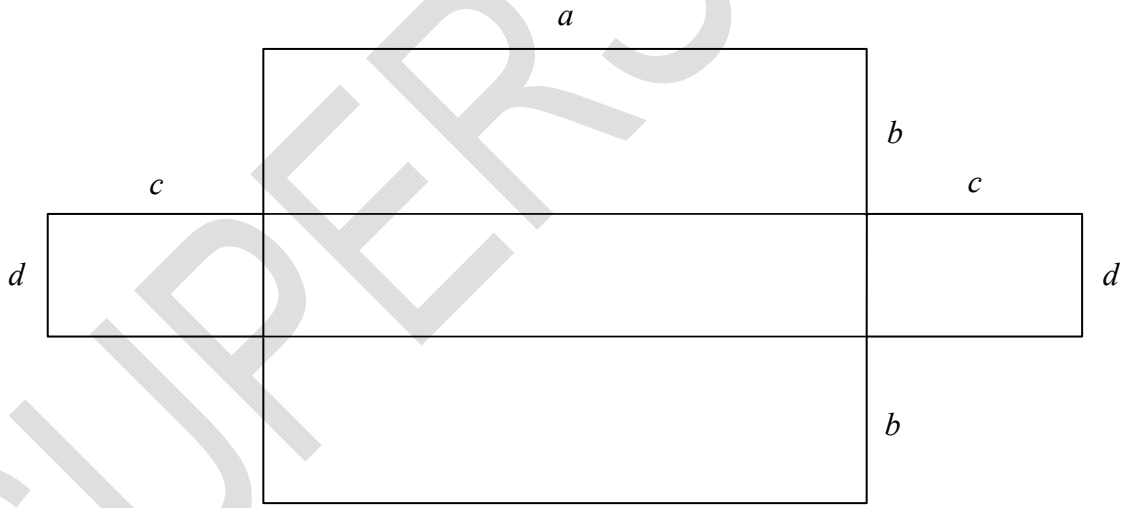
24 (c) On the diagram below shade the area represented by the expression $d(a + 2c)$

[1 mark]



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

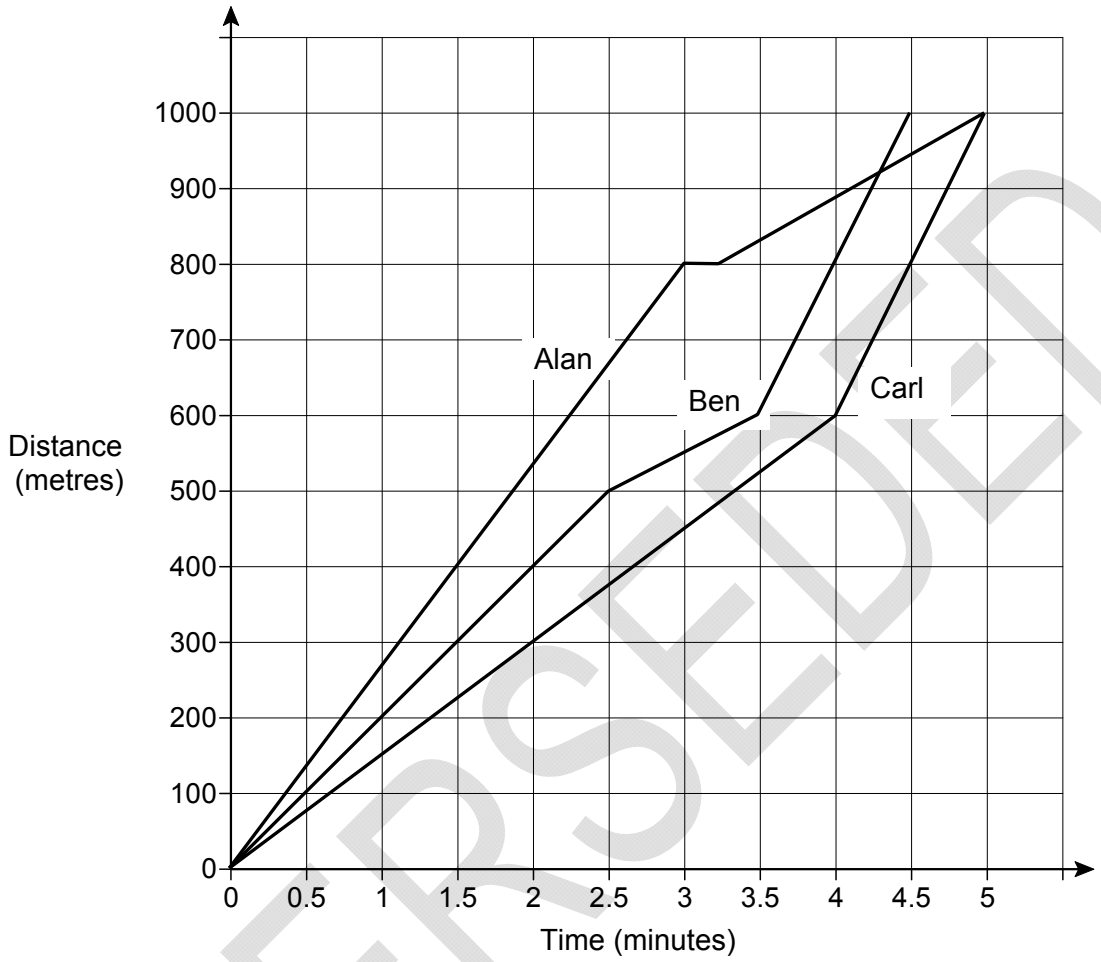
[1 mark]



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 _____

_____

_____

25 (b) Describe the race.

[4 marks]

26 Two straight lines are shown.

A is the midpoint of *OB*.

B is the midpoint of *TS*.

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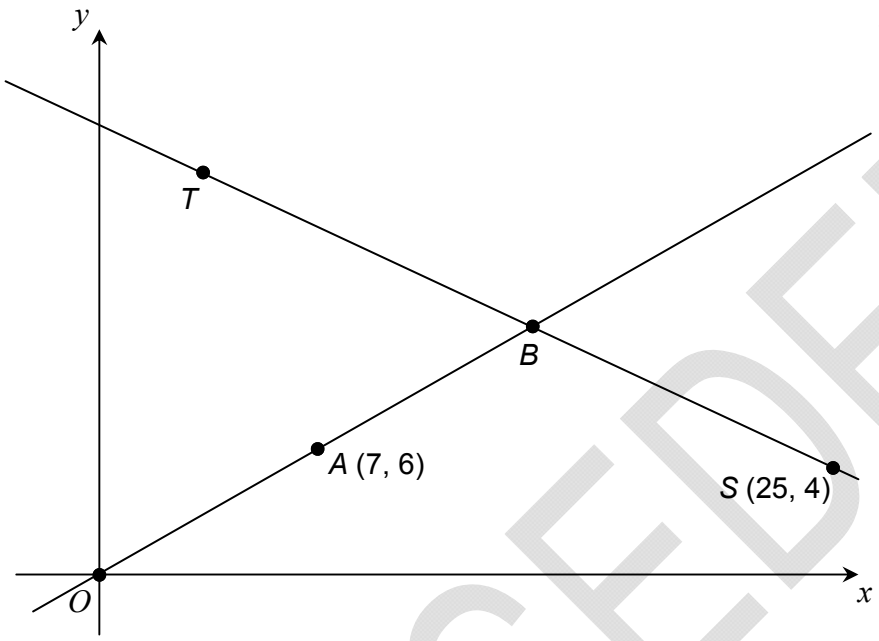


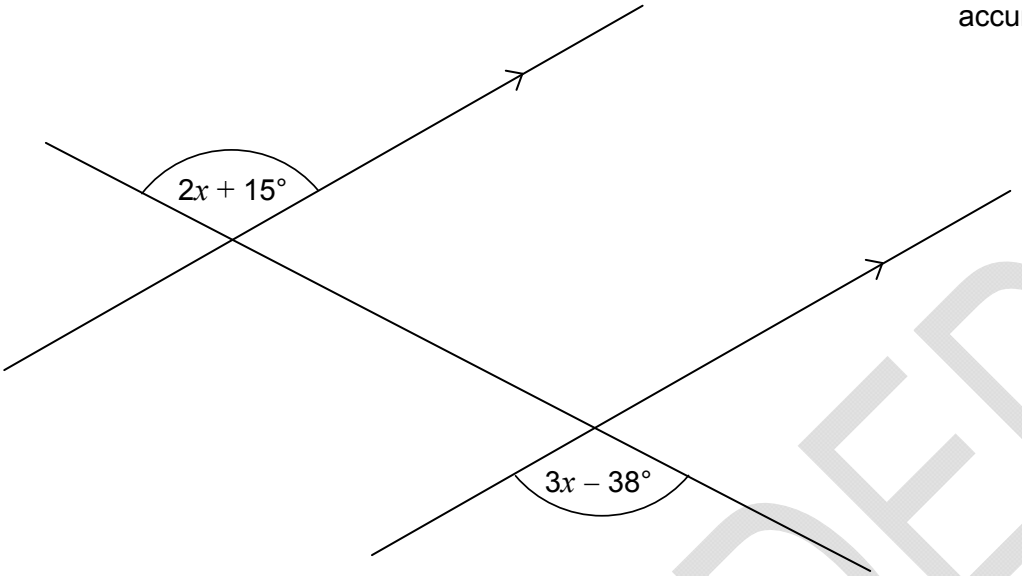
Work out the coordinates of *T*.

[3 marks]

Answer (_____ , _____)

27 Three straight lines are shown.

Not drawn accurately



Work out the value of x.

[3 marks]

Answer _____

28 $2x + 3y = 15.5$

$x + y = 6$

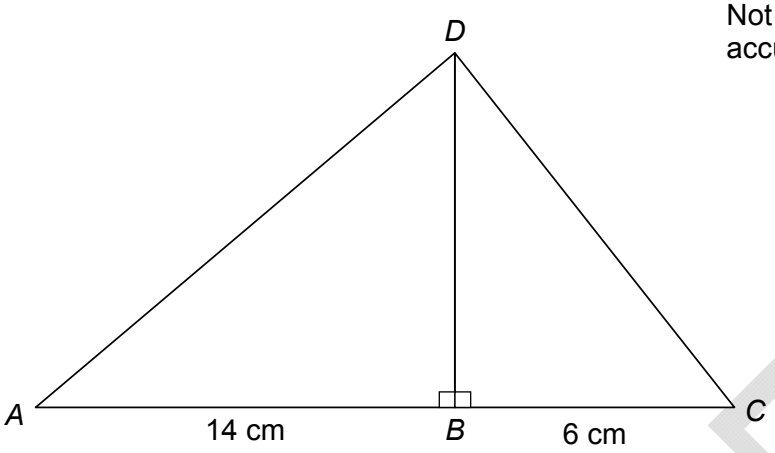
Work out the values of x and y.

[3 marks]

$x =$ _____

$y =$ _____

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



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Work out the length of *CD*.

[4 marks]

Answer _____ cm

END OF QUESTIONS

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