

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

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.

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	
TOTAL	

1 (a) Write $\frac{1}{10}$ as a percentage.

[1 mark]

Answer _____ %

1 (b) Write 0.9 as a percentage.

[1 mark]

Answer _____ %

2 Write $\frac{8}{10}$ as a fraction in its simplest form.

[1 mark]

Answer _____

3 Simplify $7y + 4x - 2y + 3x$

[2 marks]

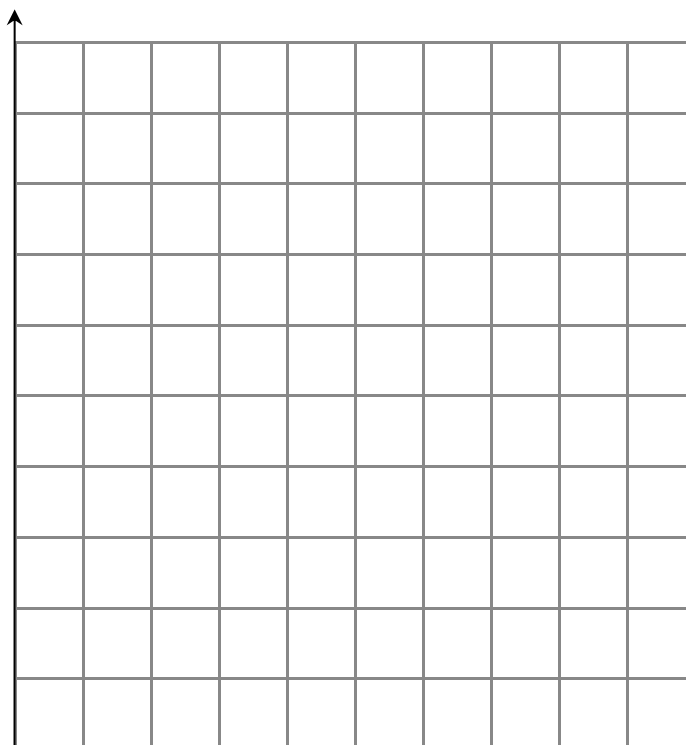
Answer _____

- 4 This table shows what 20 students do for lunch.

Sandwiches	School dinner	Go home
7	5	8

Draw a bar chart to show this information.

[4 marks]



Turn over for the next question

- 5** Write these numbers in order, starting with the smallest.

[1 mark]

7.1

7.11

7.01

Answer _____

- 6** Work out $46 - 2.5 \times 4$

[2 marks]

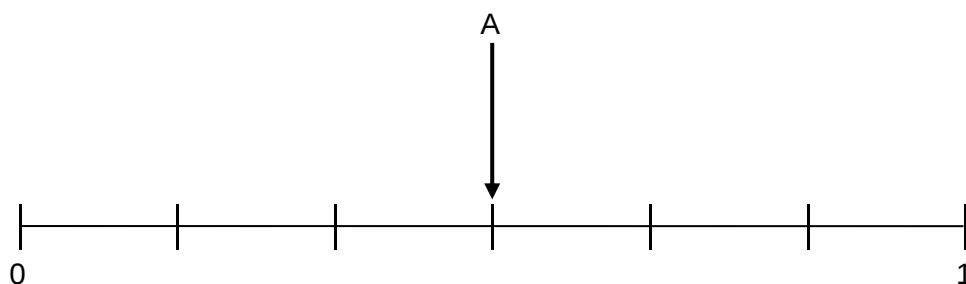
Answer _____

7 Here are three events for an ordinary fair dice.

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

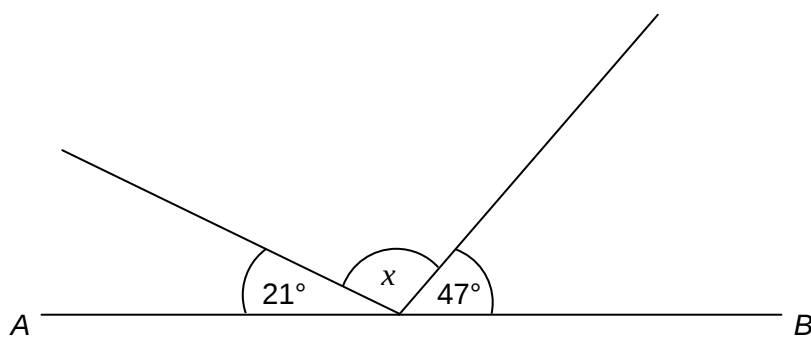
Draw and label arrows to show the probabilities of events B and C on the probability scale.

[2 marks]



Turn over for the next question

8



Not drawn
accurately

AB is a straight line.

Work out the size of angle x

[2 marks]

$x =$ _____ $^\circ$

- 9** 68 students go on a school trip.
Each student will be given a bottle of water.
Bottles are available in packs of 10.
How many of these packs are needed?

[3 marks]

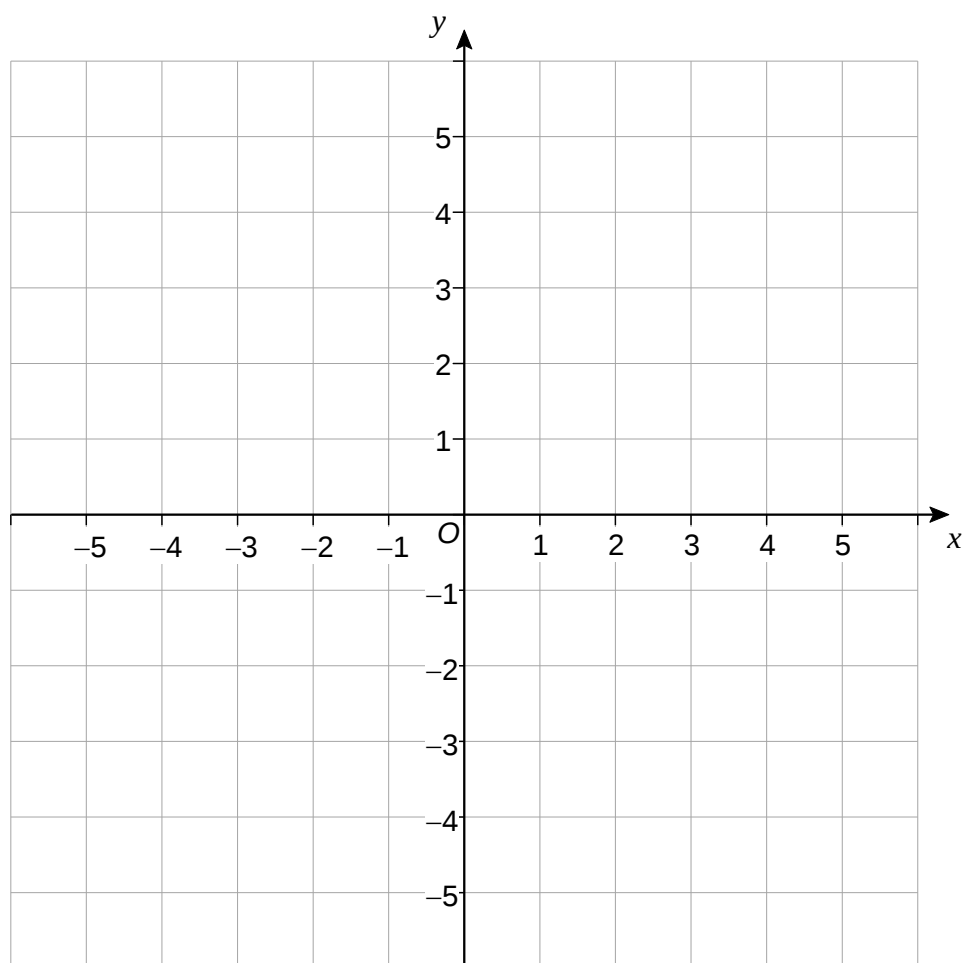
Answer _____

- 10** There are 10 discs in a bag.
5 are red, 3 are green and the rest are blue
A counter is chosen at random.
Work out the probability that it is blue.

[2 marks]

Answer _____

- 11 Here is a centimetre grid.



$A(5, 3)$, $B(5, -3)$ and $C(-5, 0)$ 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) Work out the value of 2^3

[1 mark]

Answer _____

12 (b) Work out the value of 10^4

[1 mark]

Answer _____

12 (c) Work out the value of $\sqrt{144}$

[1 mark]

Answer _____

13 Solve $2x - 7 = 10$

[2 marks]

$x =$ _____

14

Ian has 80p.

Sam has £4.

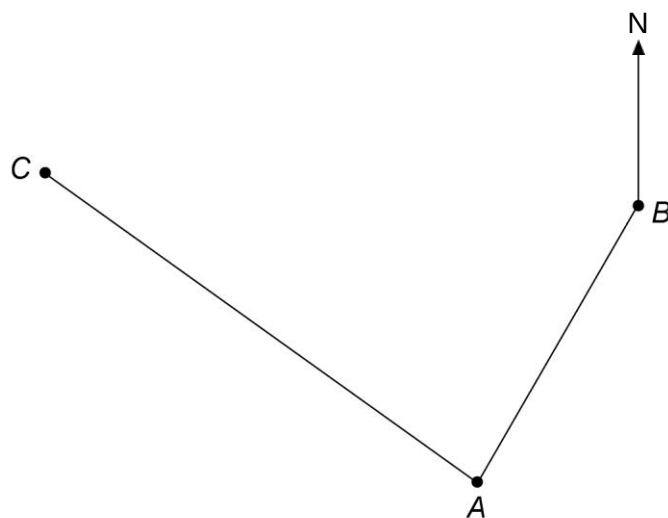
Sam gives Ian some money so that they both have the same amount.

How much does Sam give to Ian?

[2 marks]

Answer £ _____

- 15** The diagram shows the position of three towns.



Scale: 1 cm represents 50 km

- 15 (a)** Write down the three-figure bearing of A from B.

[1 mark]

Answer _____

- 15 (b)** Work out the actual straight line distance from C to A.

[2 marks]

Answer _____ km

Turn over for the next question

16

A small theatre has:

21 rows of seats

9 seats in each row

Adult tickets are £8 each.

Child tickets are £5 each.

The theatre has sold tickets for every seat.

The manager estimates that £1250 was raised from these tickets.

90 child tickets were sold.

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

[6 marks]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

- 17** Here is some information about a group of animals.

	Cats	Dogs
Dark fur	15	7
Light fur	5	14

- 17 (a)** Write down the number of dark fur dogs to light fur dogs as a ratio.
Give your answer in its simplest form.

[1 mark]

Answer _____ : _____

- 17 (b)** What percentage of the cats have dark fur?

[2 marks]

Answer _____ %

- 18** Ding says,

“If you divide any multiple of 5 by 2 the answer is **never** a whole number.”

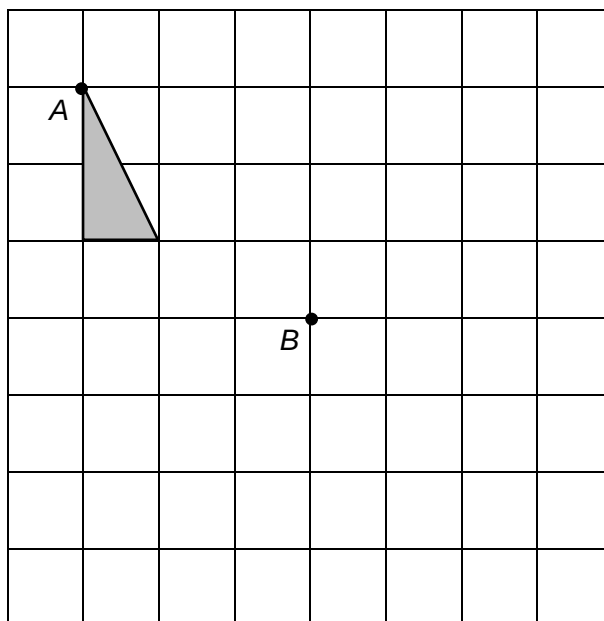
Is he correct?

Write down a calculation to support your answer.

[1 mark]

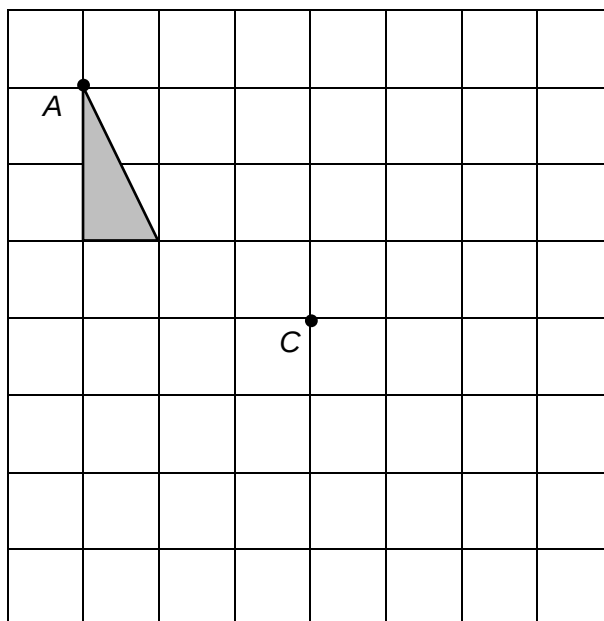
- 19 (a) Translate the triangle so that point A moves to point B .

[1 mark]



- 19 (b) Rotate the triangle 90° anti-clockwise about point C .

[2 marks]



20

Here is a formula.

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

Work out the value of V when $x = 10$ and $h = 7$

[2 marks]

Answer _____

21

Pens are sold in boxes of 10

Pencils are sold in boxes of 8

Rulers are sold in boxes of 5

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

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

[3 marks]

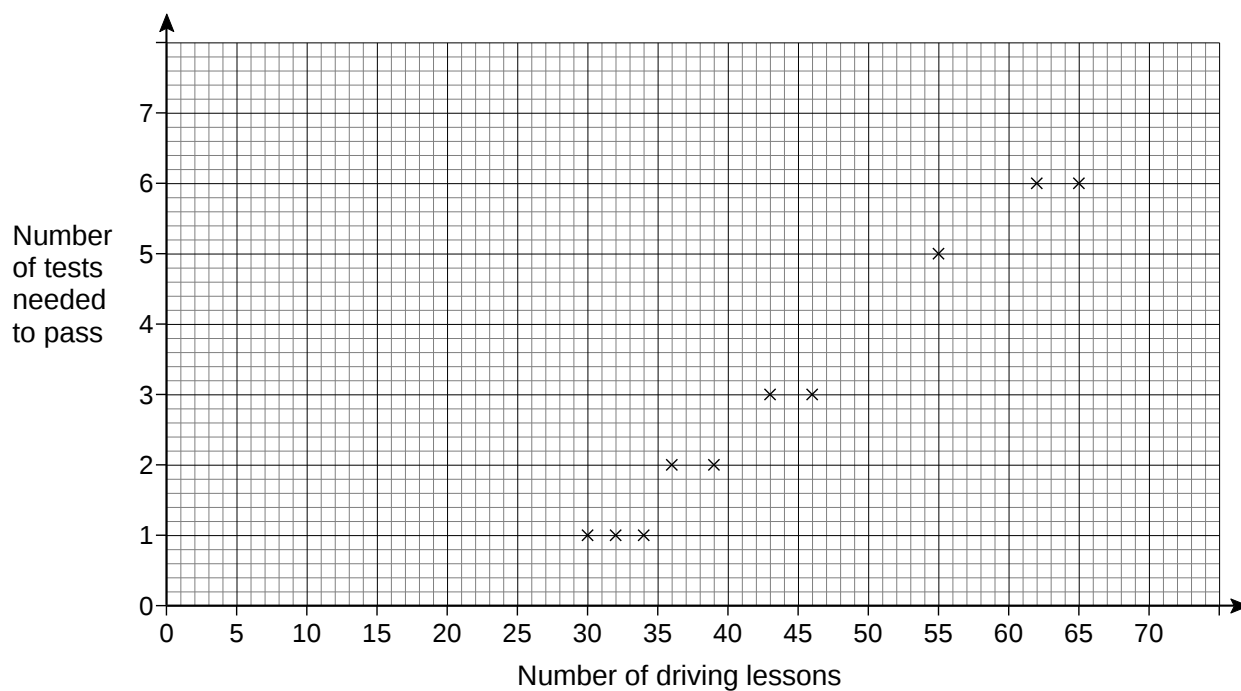
_____ boxes of pens

_____ boxes of pencils

_____ boxes of rulers

22

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



22 (a) What proportion of the 10 people passed on their first test?

[1 mark]

Answer _____

22 (b) Write down the type of correlation shown in the graph.

[1 mark]

Answer _____

- 22 (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 _____

- 22 (d)** Selma says,

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

Comment on their statement.

[1 mark]

- 23** Which of $\frac{7}{8}$ or $1\frac{1}{5}$ is closer in value to 1?

You **must** show your working.

[3 marks]

Answer _____

24

$$3a + 2b = 25.5$$

$$a + 2b = 16.5$$

Work out the values of a and b

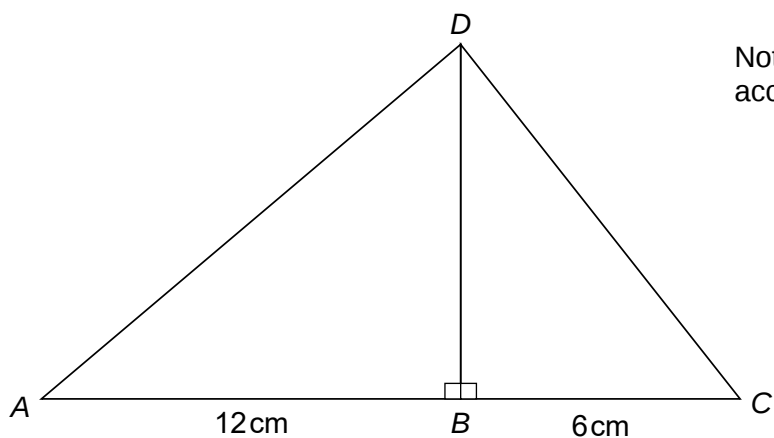
[3 marks]

$a =$ _____

$$b =$$

25

In the diagram the area of triangle ACD is 45cm^2



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accurately

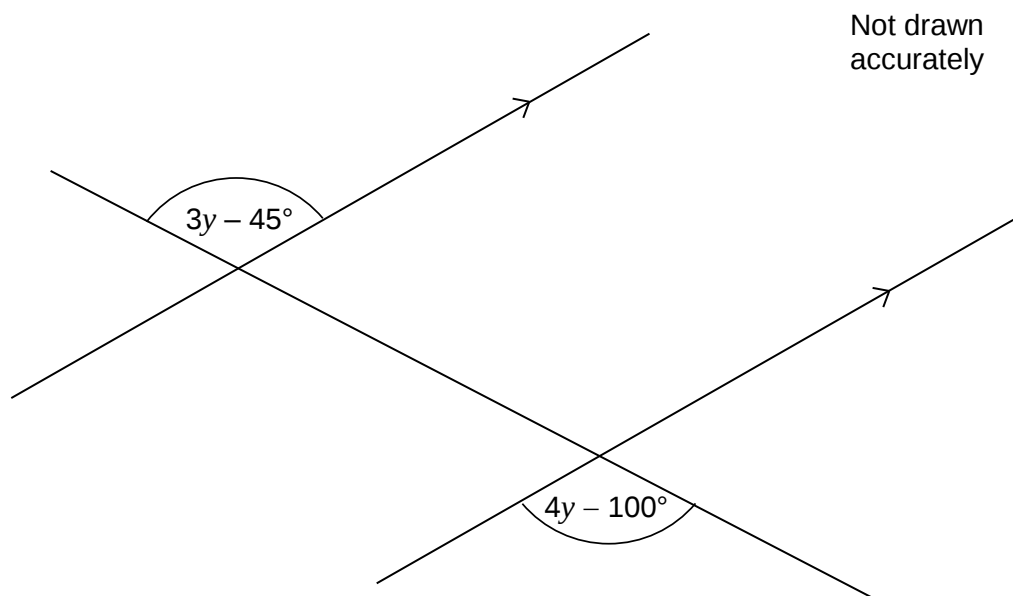
Work out the length of AD .

[4 marks]

Answer cm

26

Three straight lines are shown.

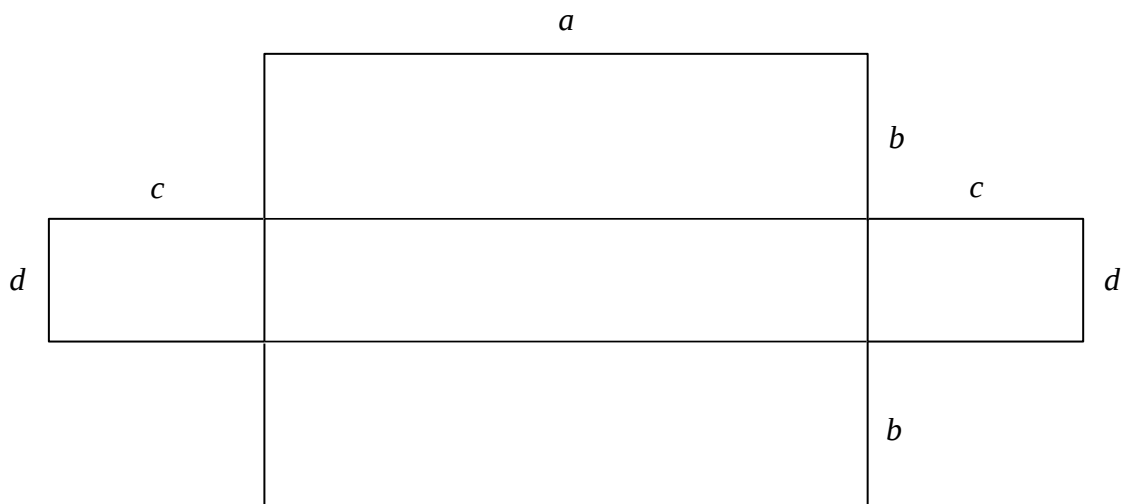
Work out the value of y **[3 marks]**

Answer _____

27 A shape is made from rectangles.

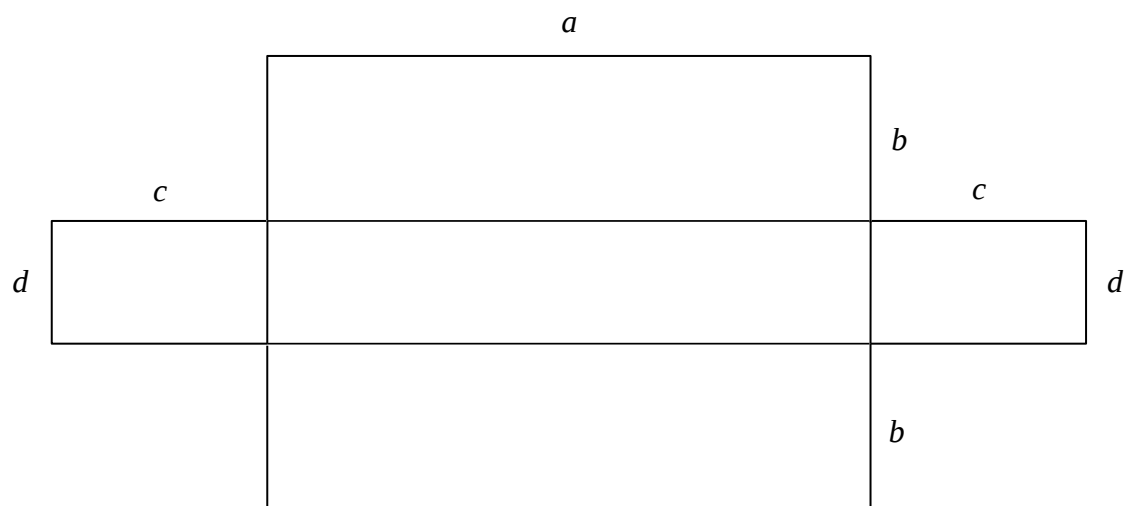
27 (a) On the diagram below shade an area represented by the expression cd

[1 mark]



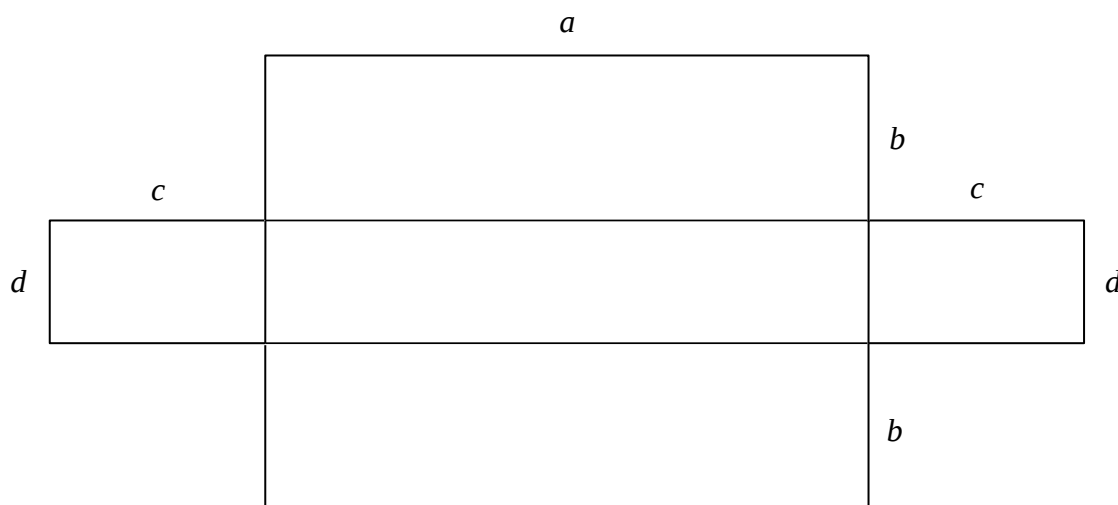
27 (b) On the diagram below shade an area represented by the expression $2ab$

[1 mark]



27 (c) Write down an expression for the area of the whole shape.

[1 mark]



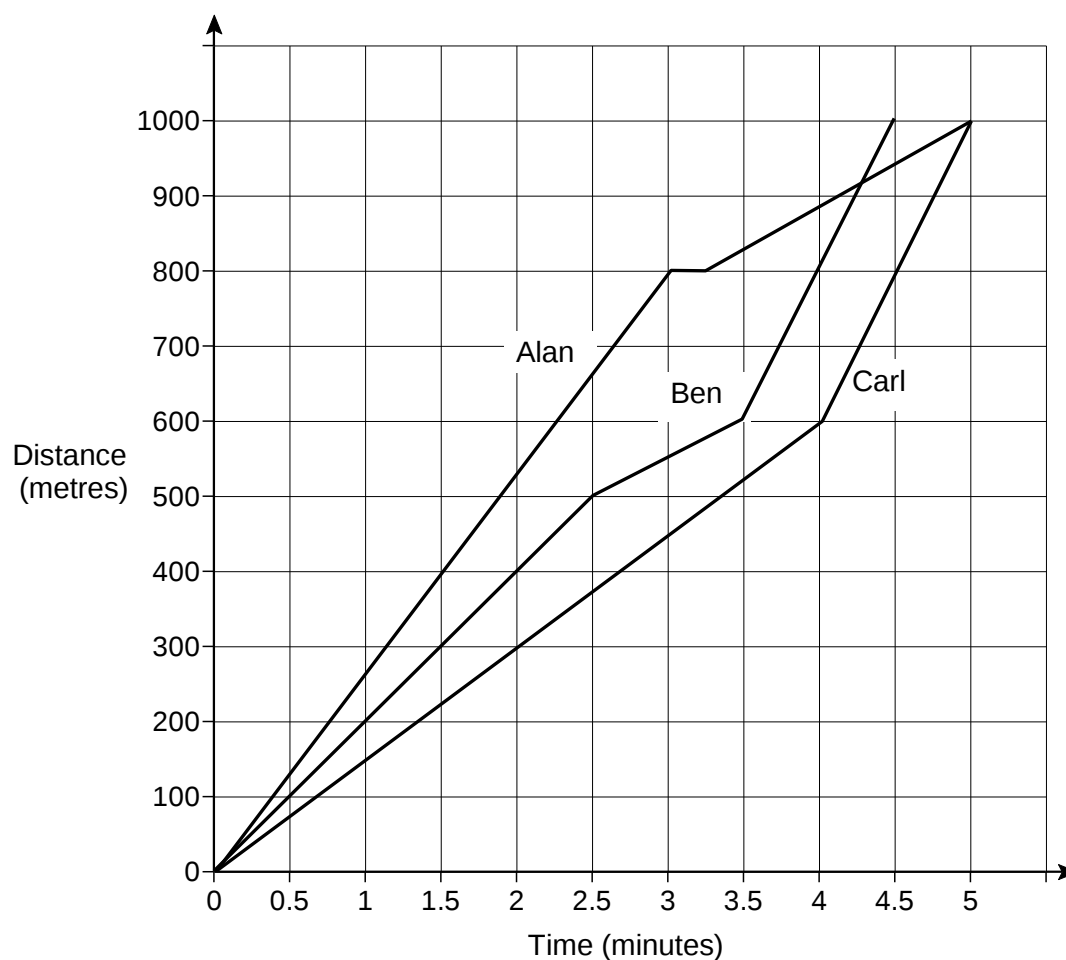
Answer _____

Turn over for the next question

28

Alan, Ben and Carl ran a 1000 metre race.

The distance-time graph shows the race.



28 (a) Who won the race?

Give a reason for your answer.

[2 marks]

Answer _____

Reason _____

28 (b)

Describe the race.

Mention each runner at least once.

[3 marks]

[illegible]

Turn over for the next question

5

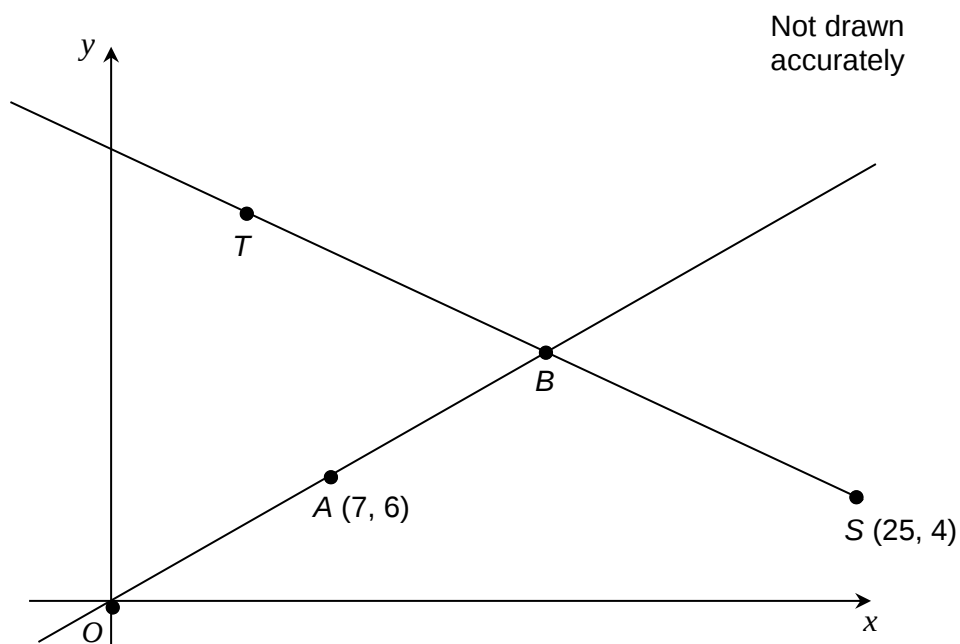
Turn over ►

29

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 (_____ , _____)

END OF QUESTIONS

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