



Surname _____

Forename(s) _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

I declare this is my own work.

GCSE

MATHEMATICS

F

Foundation Tier Paper 2 Calculator

8300/2F

Monday 3 June 2024

Morning

Time allowed: 1 hour 30 minutes

[Turn over]



J U N 2 4 8 3 0 0 2 F 0 1

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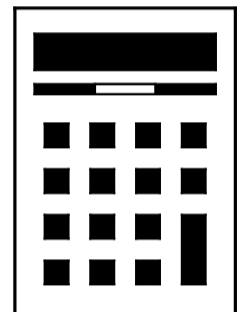


On the front of this book, write your surname and forename(s), your centre number, your candidate number and add your signature.

MATERIALS

For this paper you must have:

- **a calculator**
- **mathematical instruments**
- **the Formulae Sheet (enclosed).**



INSTRUCTIONS

- **Use black ink or black ball-point pen.
Draw diagrams in pencil.**
- **Answer ALL questions.**

[Turn over]



- **You must answer the questions in the spaces provided. Do not write 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.

DO NOT TURN OVER UNTIL TOLD TO DO SO



Answer ALL questions in the spaces provided.

1(a) Write 0.27 as a fraction. [1 mark]

Answer _____

1(b) Write $\frac{2}{5}$ as a decimal. [1 mark]

Answer _____

**1(c) Write 0.35 as a percentage.
[1 mark]**

Answer _____ %



2(a) Simplify fully $x + 4x$ [1 mark]

Answer _____

2(b) Simplify fully $5 \times 2w$ [1 mark]

Answer _____

2(c) Simplify fully $2m \div m$ [1 mark]

Answer _____

2(d) Simplify fully $y \times y \times y$ [1 mark]

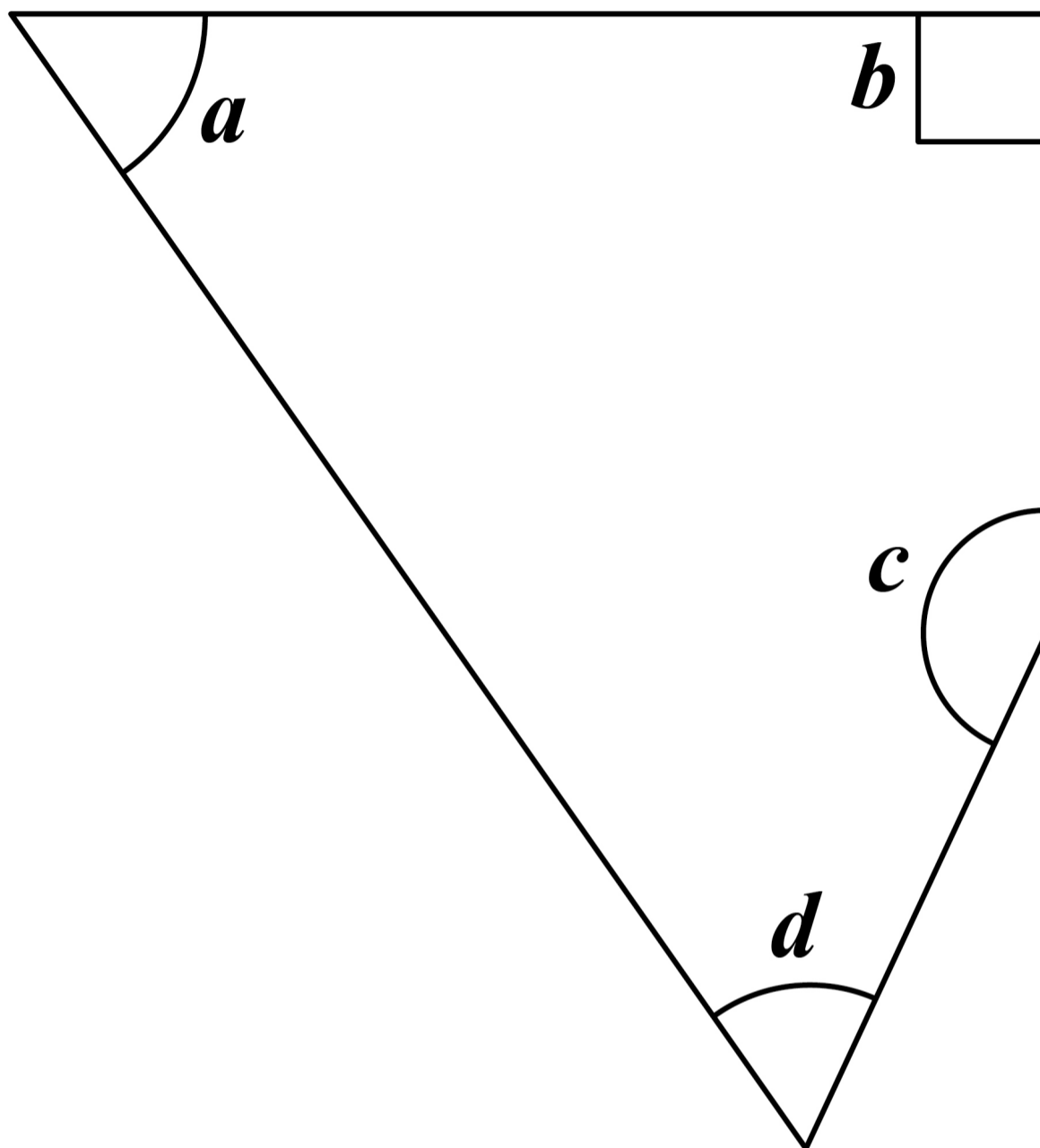
Answer _____

[Turn over]

7



3 Here is a quadrilateral.



3(a) Write down the letter of the obtuse angle. [1 mark]

Answer _____

3(b) Write down the letter of an acute angle. [1 mark]

Answer _____

3(c) How many lines of symmetry does the shape have? [1 mark]

Answer _____

[Turn over]



4(a) One lettuce costs £1.29

**How much do SEVEN of these
lettuces cost? [1 mark]**

Answer £ _____



4(b) Five cucumbers cost £6.40 in total.

How much do TWO of these cucumbers cost? [1 mark]

Answer £ _____

[Turn over]

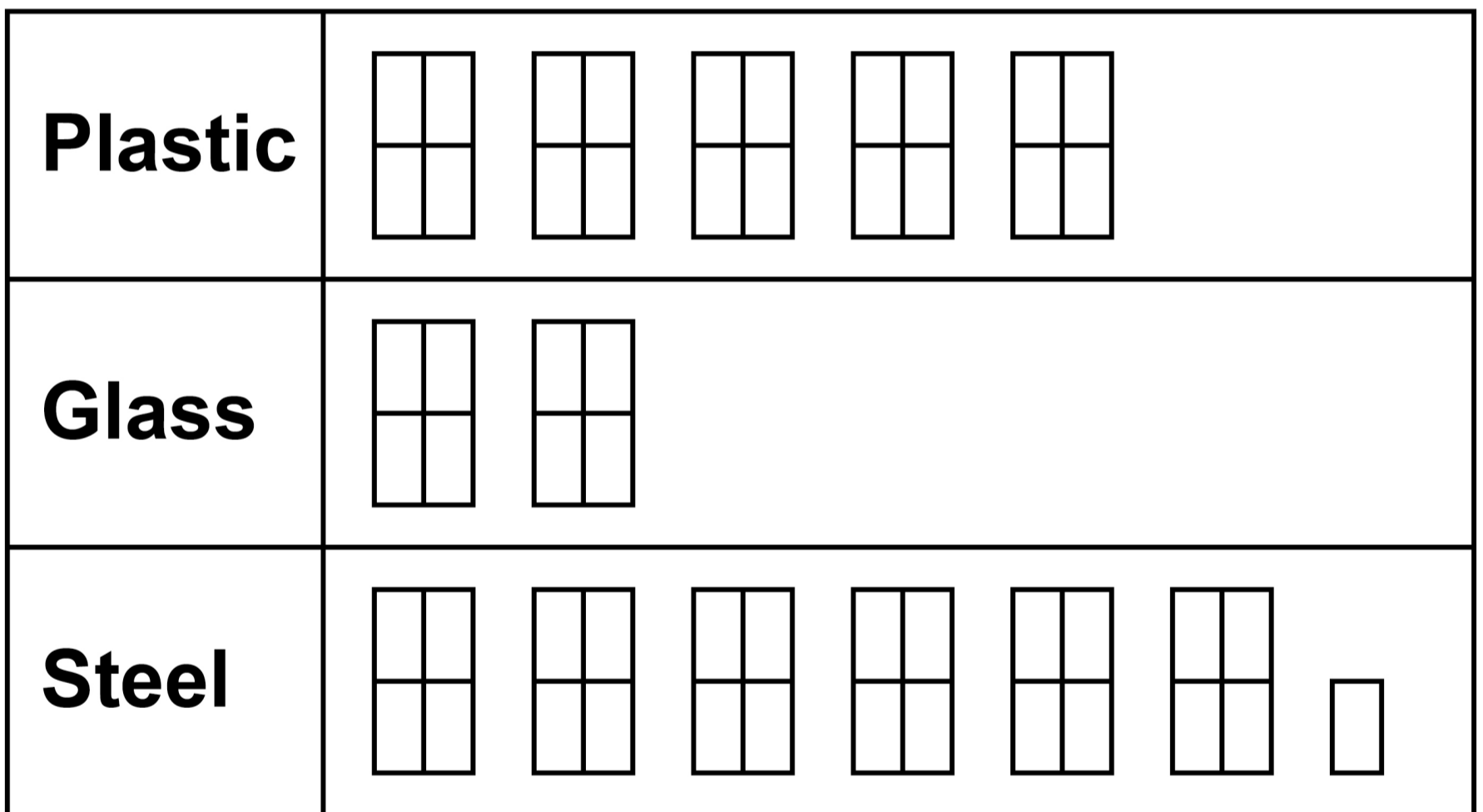
5



5 A company sells three types of bottle.

The pictogram shows how many bottles they sold one week.

KEY:  represents 20 bottles



5 (a) The company sold MORE plastic bottles than glass bottles that week.

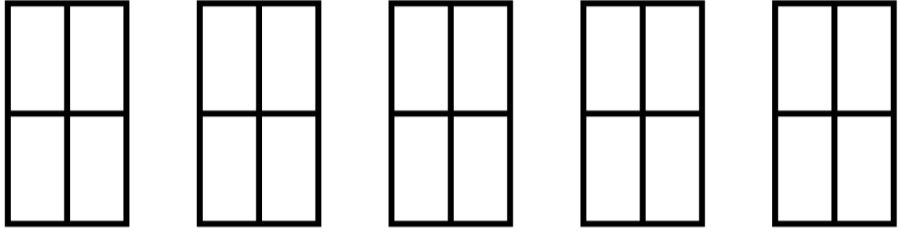
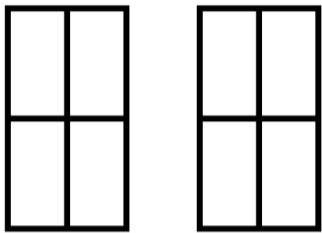
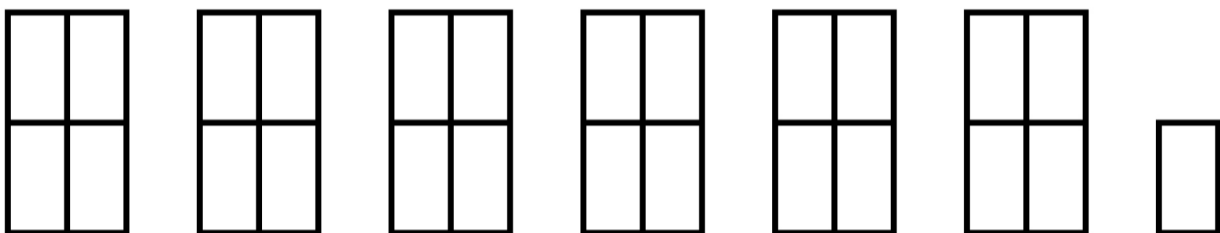
How many more? [2 marks]

Answer _____

[Turn over]

Here is the pictogram again.

KEY:  represents 20 bottles

Plastic	
Glass	
Steel	

5 (b) The company sells each STEEL bottle for £17.50

Work out the total amount of money made from selling STEEL bottles that week. [3 marks]

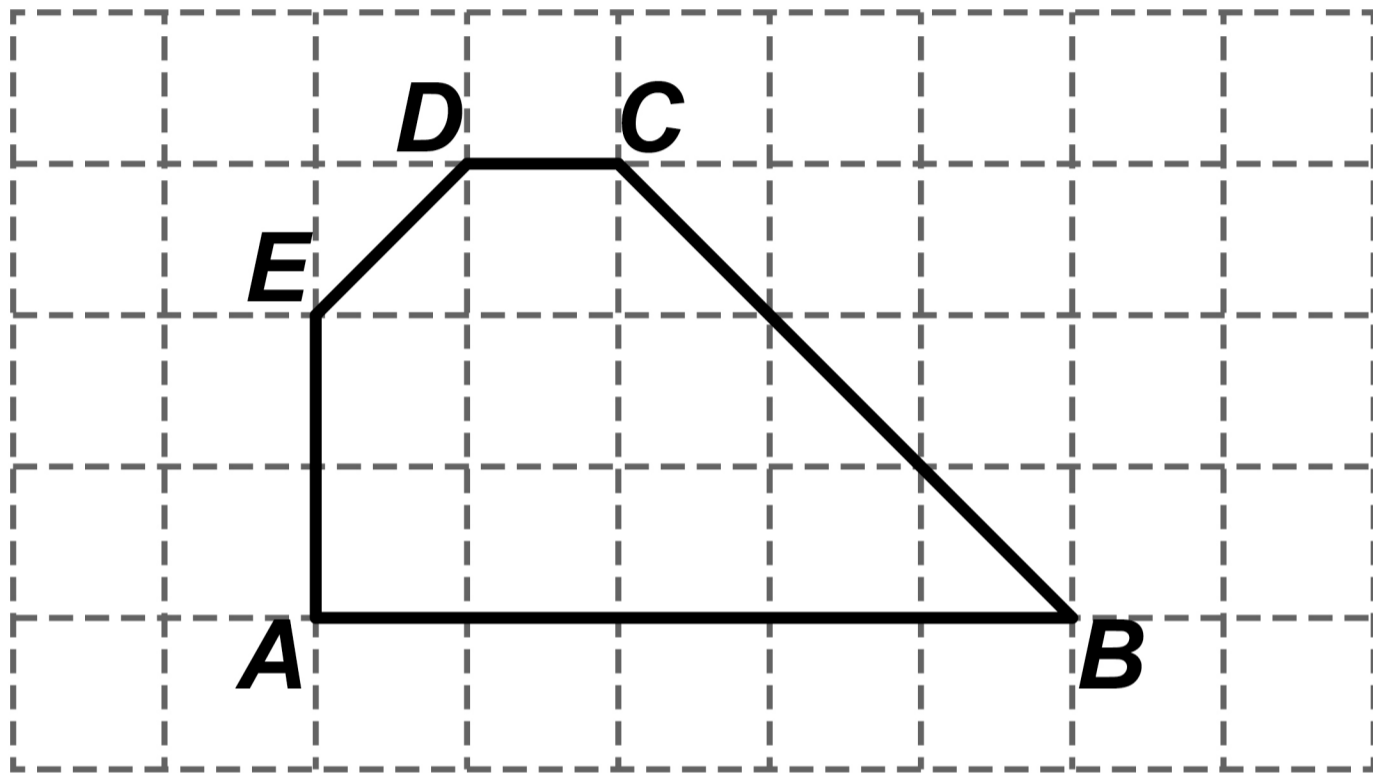
Answer £ _____

[Turn over]



6 Shape $ABCDE$ is drawn on a centimetre grid.

The grid is not drawn to scale.



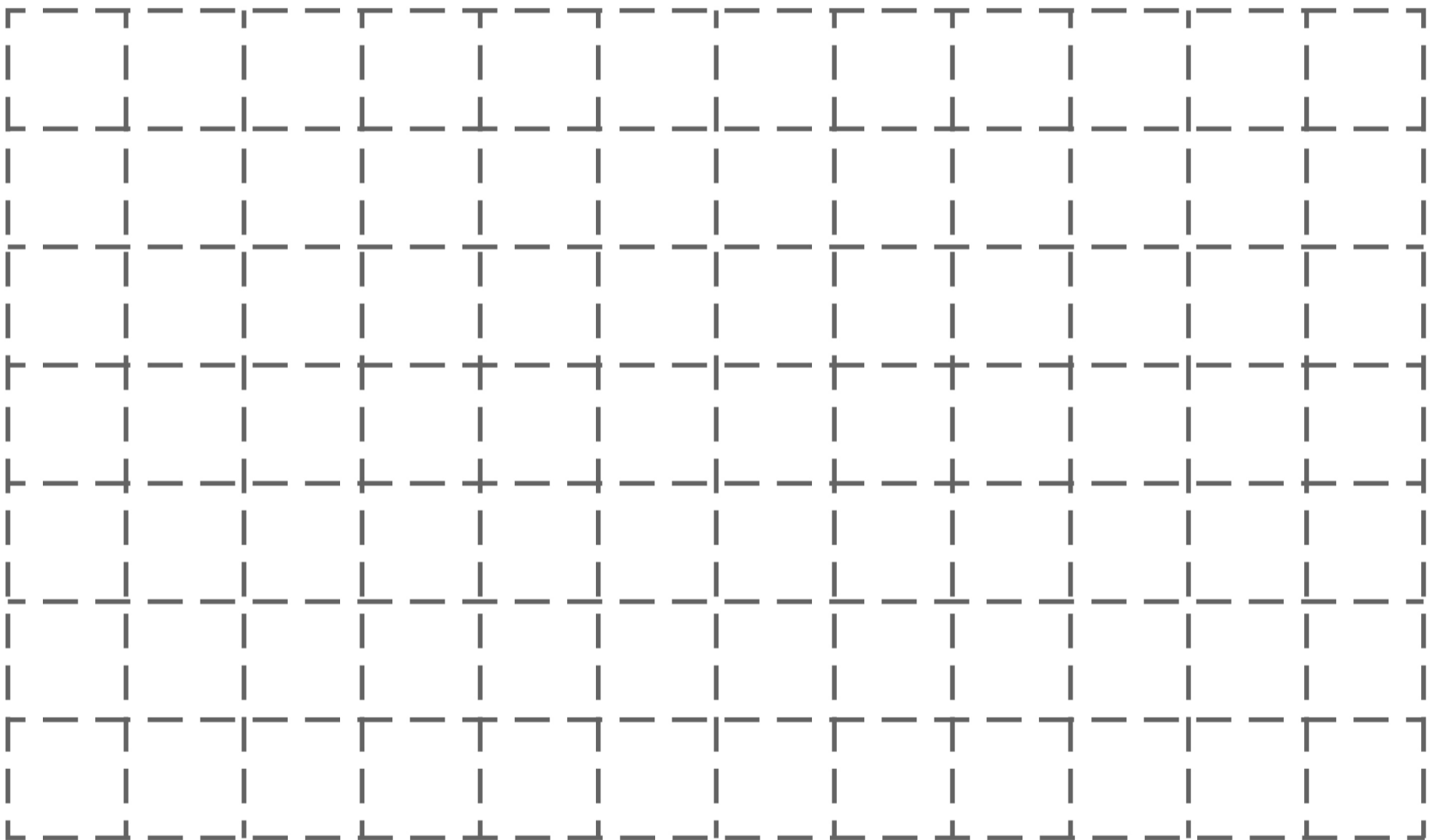
6(a) Complete this statement. [1 mark]

AB : _____ = 5 : 1



**6(b) On this centimetre grid,
draw a RECTANGLE with the same
area as shape *ABCDE*. [2 marks]**

The grid is not drawn to scale.



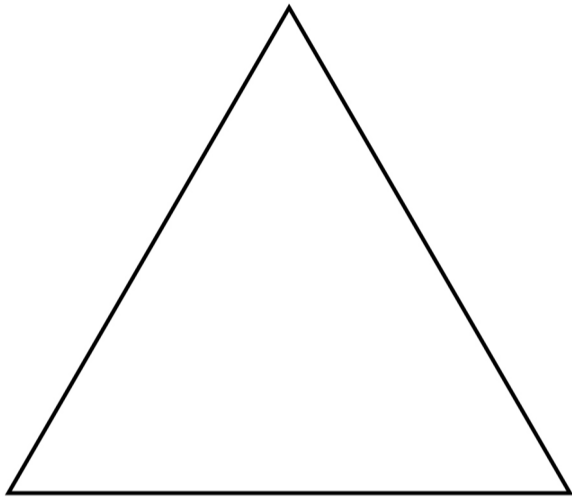
[Turn over]

8



7 Use a ruler for this question.

Here is an ACCURATE drawing of an equilateral triangle.



By measuring, work out the perimeter of the triangle.

**State the units of your answer.
[3 marks]**

Answer _____

[Turn over]

8 There are 56 cubes in a box.

The cubes are green, red, blue or white.

17 cubes are green.

There are an EQUAL number of red, blue and white cubes.

8(a) How many red cubes are in the box? [2 marks]

Answer _____



8(b) 24 MORE cubes are added to the box.

A cube is picked at random.

The probability that the cube is green is 0.4

How many of the 24 cubes added to the box are green? [3 marks]

Answer _____

[Turn over]

8



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[Turn over]



10(b) Buttons cost 65p each.

**The greatest number of buttons
Leema can buy with £5 is 7**

She says,

**“The greatest number of buttons
I can buy with £10 is 14 because
£10 is double £5”**

Is she correct?

Tick a box.

Yes

No

**Show working to support your
answer. [2 marks]**



[Turn over]

9



11 Here is a table of values for the equation $y = 3x + 1$

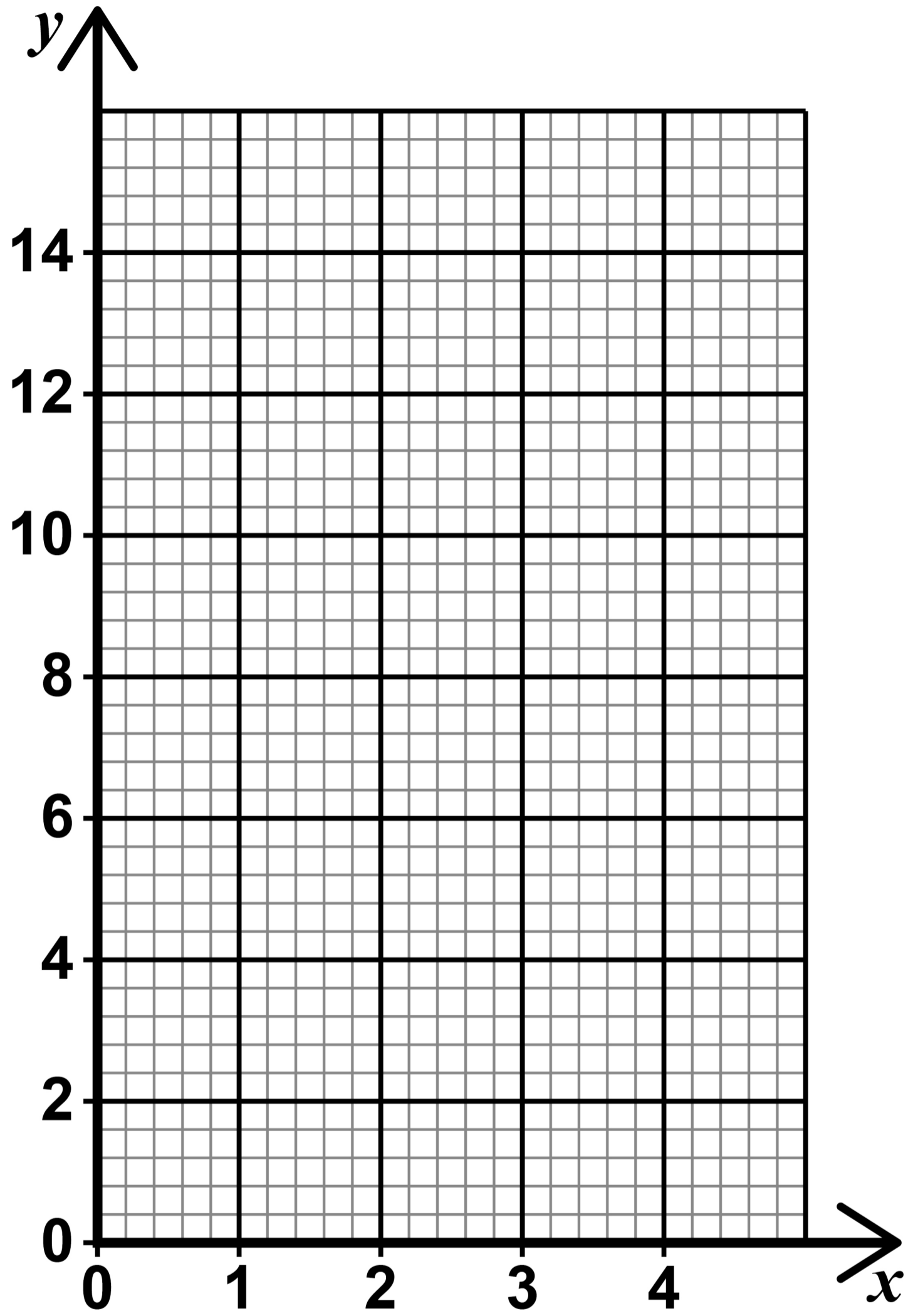
x	1	2	3	4
y	4	7	10	13

11(a) On the opposite page, draw the graph of $y = 3x + 1$ for values of x from 1 to 4 [2 marks]

11(b) Work out the value of y when $x = 2.5$ [2 marks]

$y =$ _____





[Turn over]



12 A code has five DIFFERENT digits written in order, starting with the smallest.

The last digit is the ONLY square number.

The middle digit is the ONLY even number.

Work out the code. [3 marks]

Answer



13 Four numbers have a mean of 10

Three of the numbers are 5 8 9

Work out the other number.

[3 marks]

Answer _____

[Turn over]

10



14 (a) Rearrange $d = h - 4$ to make h the subject. [1 mark]

$h =$ _____

14 (b) Rearrange $p = \frac{w}{3}$ to make w the subject. [1 mark]

$w =$ _____



15 A linear sequence begins

2 5 8 11

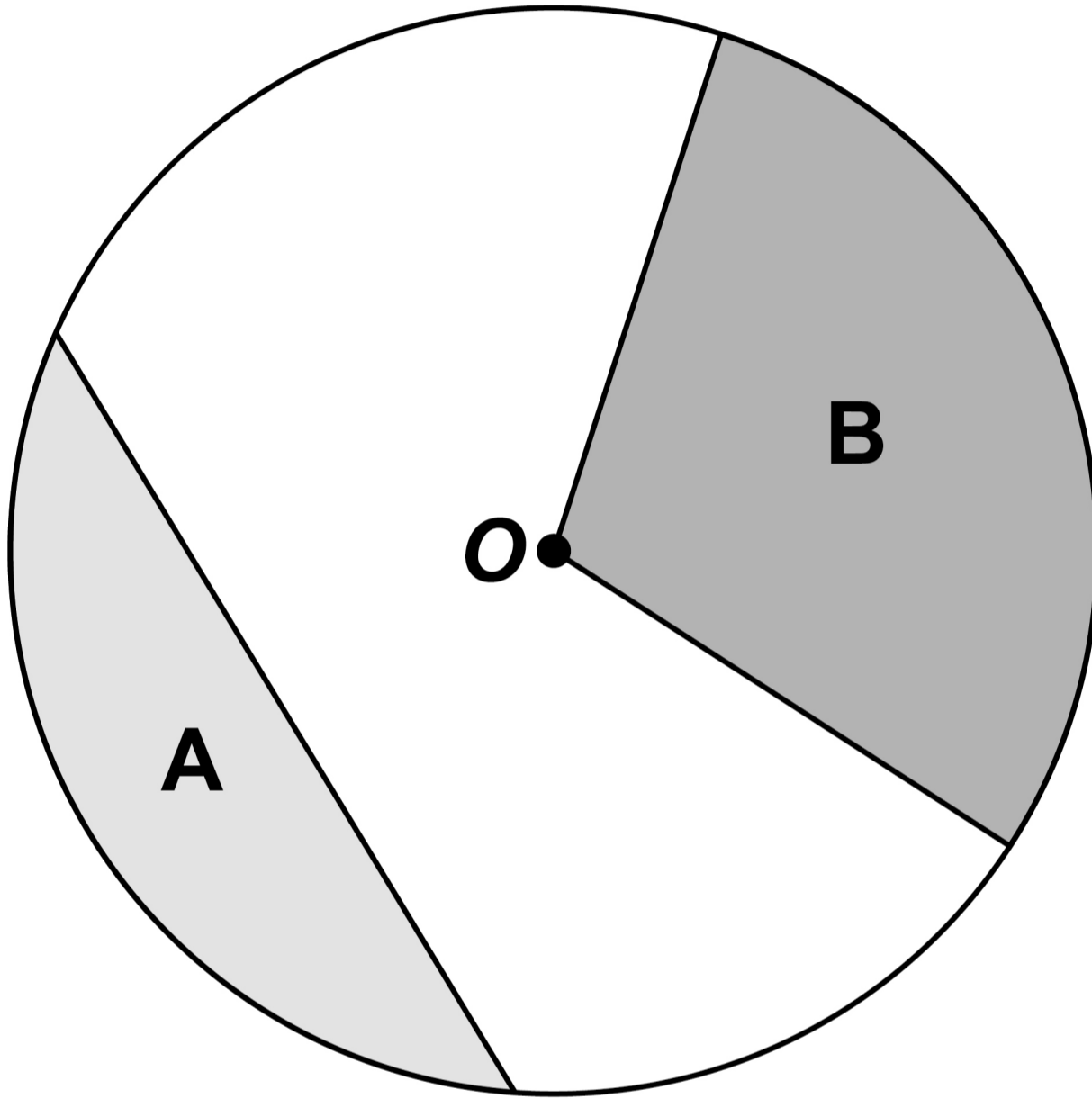
Work out an expression for the n th term. [2 marks]

Answer _____

[Turn over]



- 16** The diagram shows a circle, centre O , and three straight lines.



Use ONE word to describe each shaded region.

Choose from

- arc
- chord
- sector
- segment
- tangent

[2 marks]

Region A _____

Region B _____

[Turn over]



17 Work out $\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 4 \\ 6 \end{pmatrix}$ [1 mark]

Answer $\left(\quad \right)$

7



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[Turn over]



18 **Bag A and bag B contain counters.**

BAG A

$\frac{1}{4}$ are red

The rest are blue

BAG B

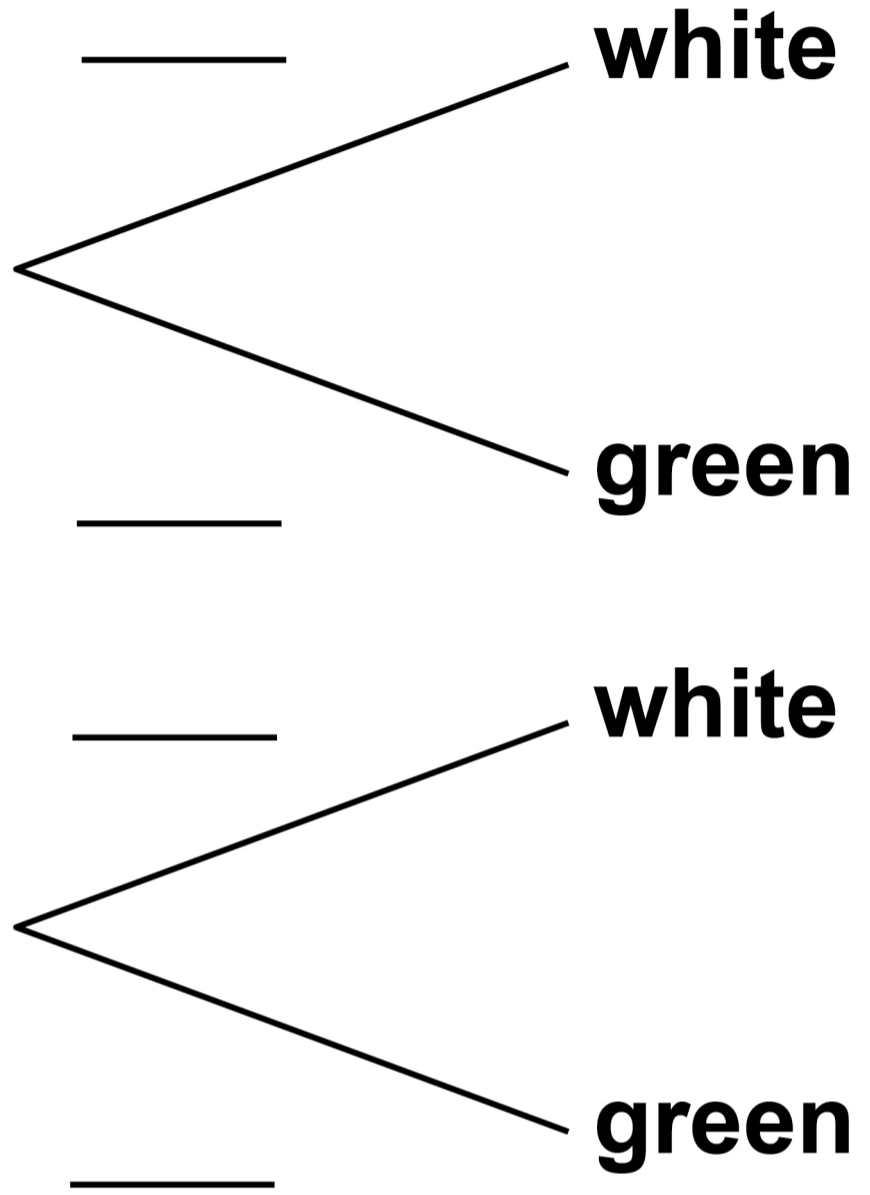
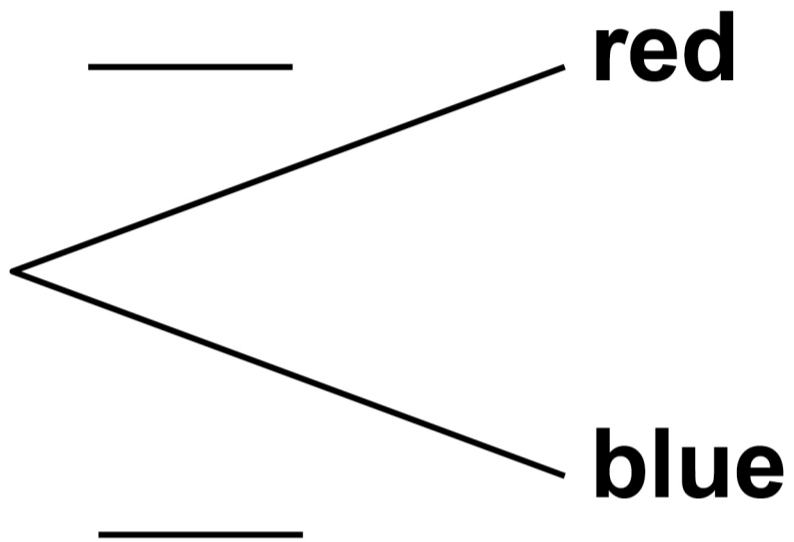
3 are white

2 are green

18 (a) **Complete the tree diagram, on the opposite page. [2 marks]**

BAG A

BAG B



[Turn over]



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18 (b) One counter is taken at random from each bag.

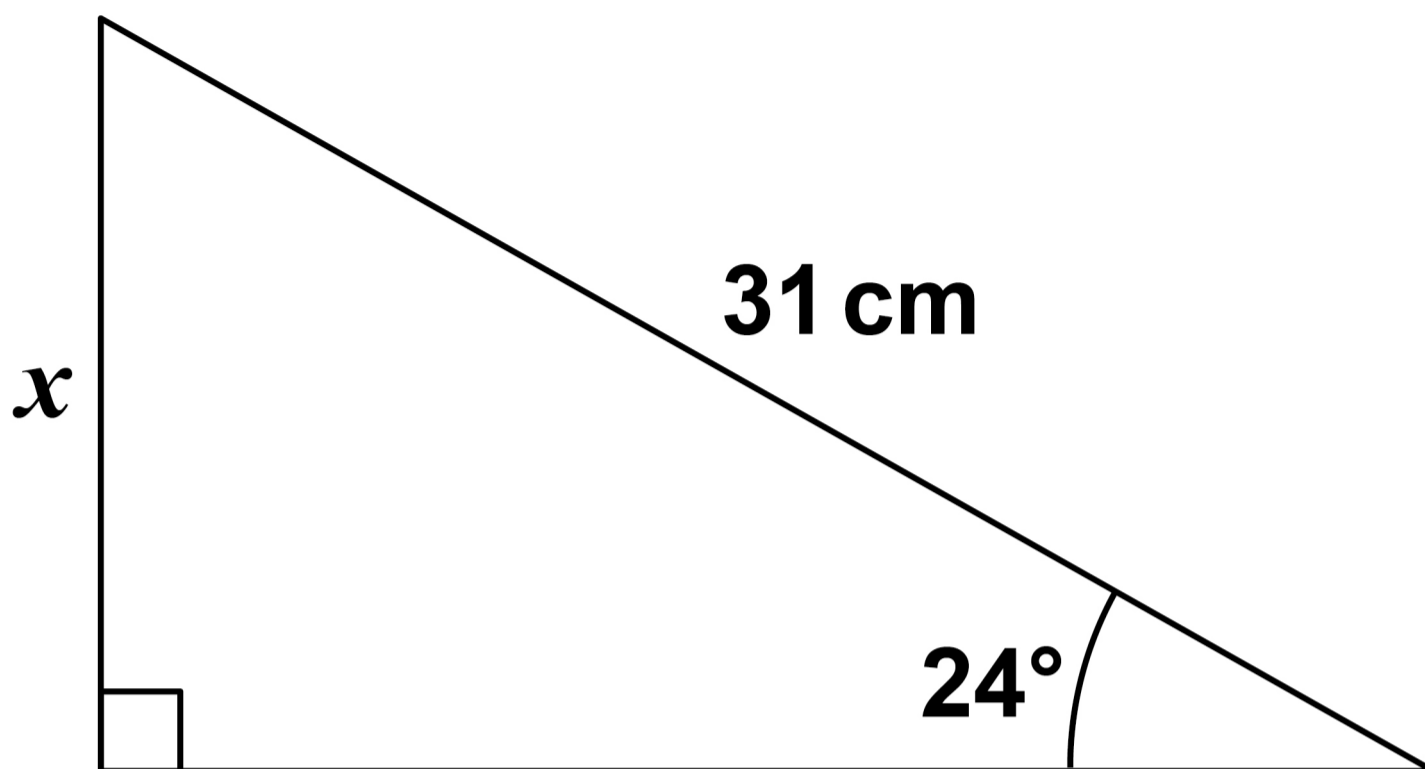
Work out the probability that one is red and one is white.

[2 marks]

Answer _____

[Turn over]

19 The diagram is not drawn accurately.



Use trigonometry to work out the value of x . [3 marks]

$x =$ _____ **cm**



20 The mass of an iceberg is
2 200 000 kg

This value is a 12% reduction from
the ORIGINAL mass of the iceberg.

Work out the ORIGINAL mass of the
iceberg.

Give your answer in standard form.
[3 marks]

Answer _____ kg

[Turn over]



21 A chef has a tub of blueberries.

She wants to

- **use all the blueberries**
- **put the same number of blueberries on each dessert.**

$$D = \frac{k}{b}$$

D is the number of desserts.

b is the number of blueberries on each dessert.



21 (a) What does the constant k represent?

Tick the correct box. [1 mark]

The number of blueberries in the tub

The number of desserts

The number of blueberries on each dessert

None of the above

21 (b) Complete the table. [2 marks]

b	2	6	
D	120		30

[Turn over]



22 (a) A fair spinner has six equal sections, each with the number 5, 6, 7 or 8

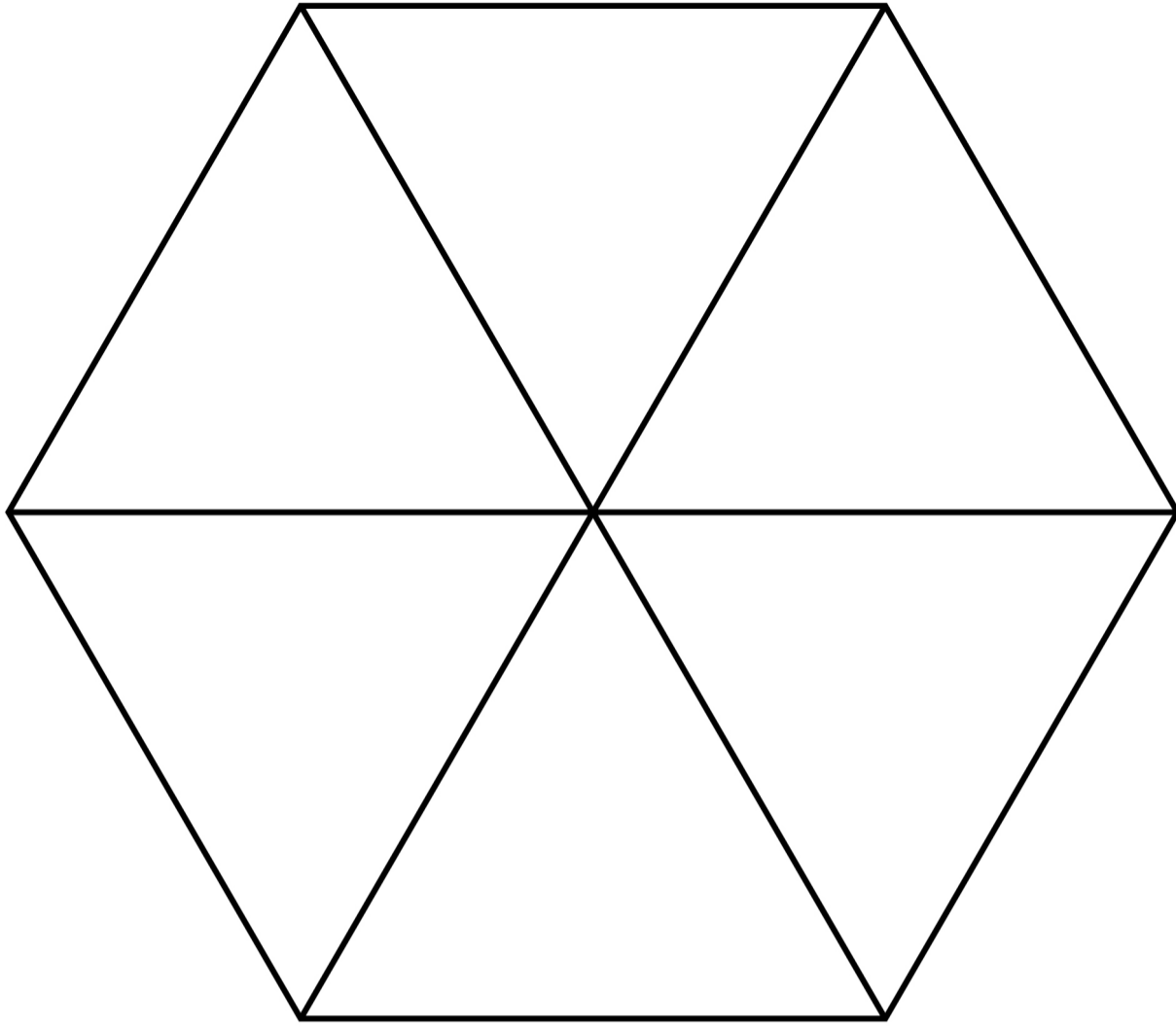
Each number appears at least once.

$$\mathbf{P(\text{even number}) = P(7)}$$

Work out $P(5)$

You may use the blank spinner, on the opposite page, to help you. [3 marks]

47



Answer _____

[Turn over]



- 22 (b)** A different spinner has ten sections, each labelled A, B, C or D.

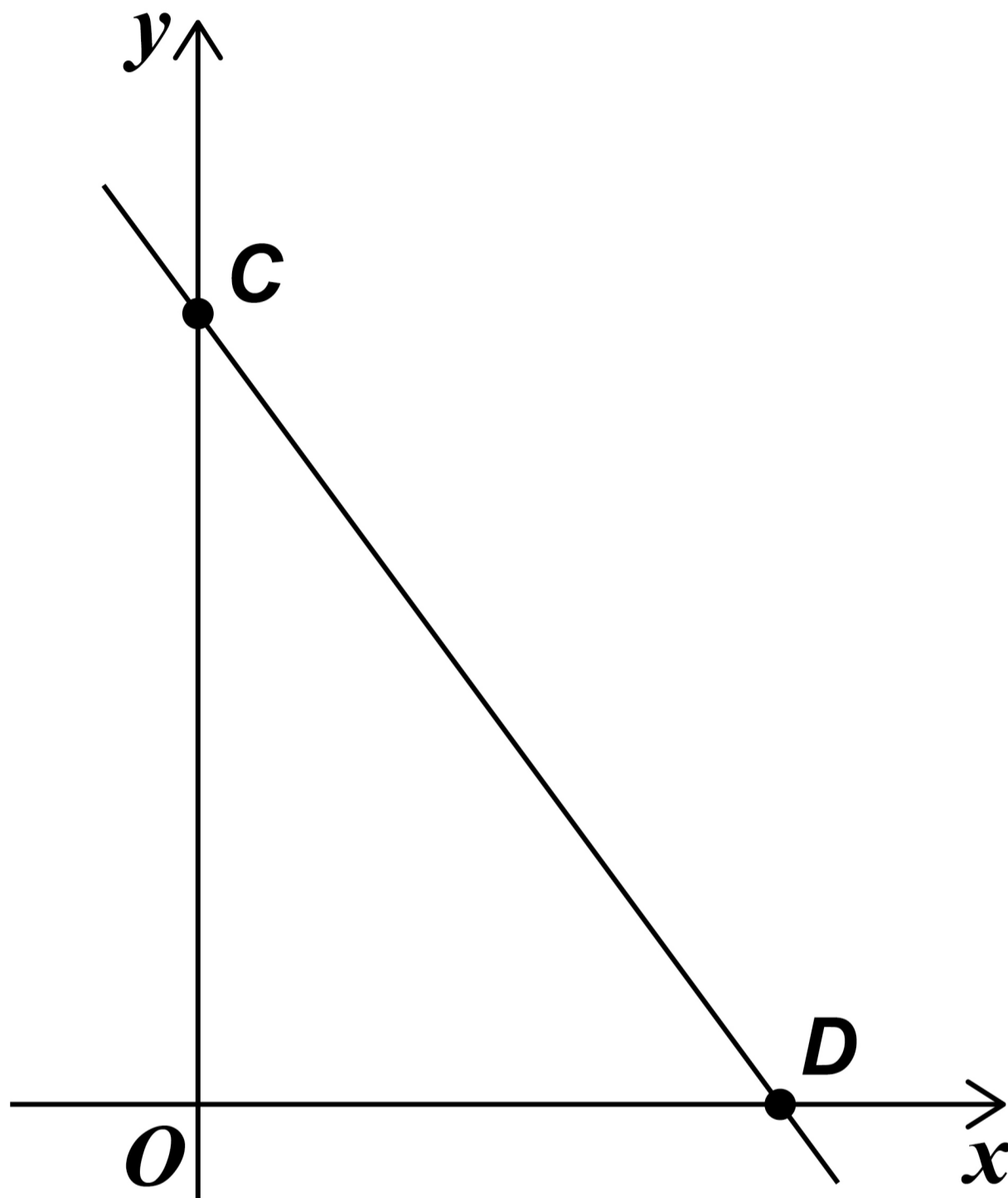
	A	B	C	D
PROBABILITY	0.1	0.5	0.2	0.3

Give ONE reason why there MUST be a mistake in the table. [1 mark]

7



23 (a) Here is a sketch of the graph
 $y = -2x + 6$



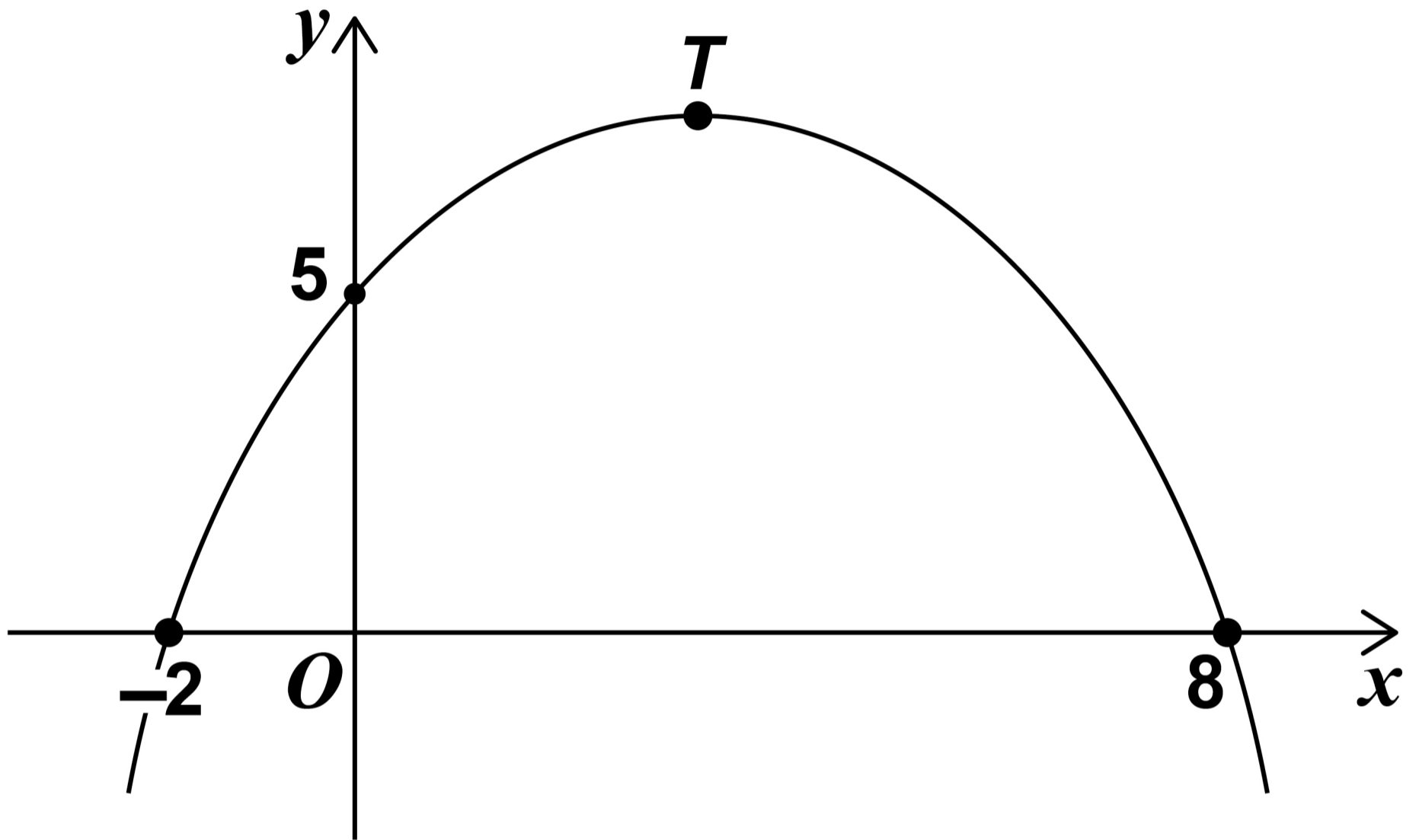
Complete the coordinates of C
and D. [2 marks]

C (0, _____) D (_____, 0)

[Turn over]



23 (b) Here is a sketch of a quadratic graph.



Complete the following statements. [2 marks]

The value of the y -INTERCEPT is

The x -COORDINATE of the turning point, T , is

[Turn over]



24 Archie flips a biased coin 200 times.

Here is some information about the outcomes after each 50 flips.

TOTAL NUMBER OF FLIPS	50	100	150	200
NUMBER OF HEADS	10	27	37	52

Work out the best estimate for the probability of flipping a head.

Give a reason for your answer.
[2 marks]

Answer _____



Reason _____

[Turn over]

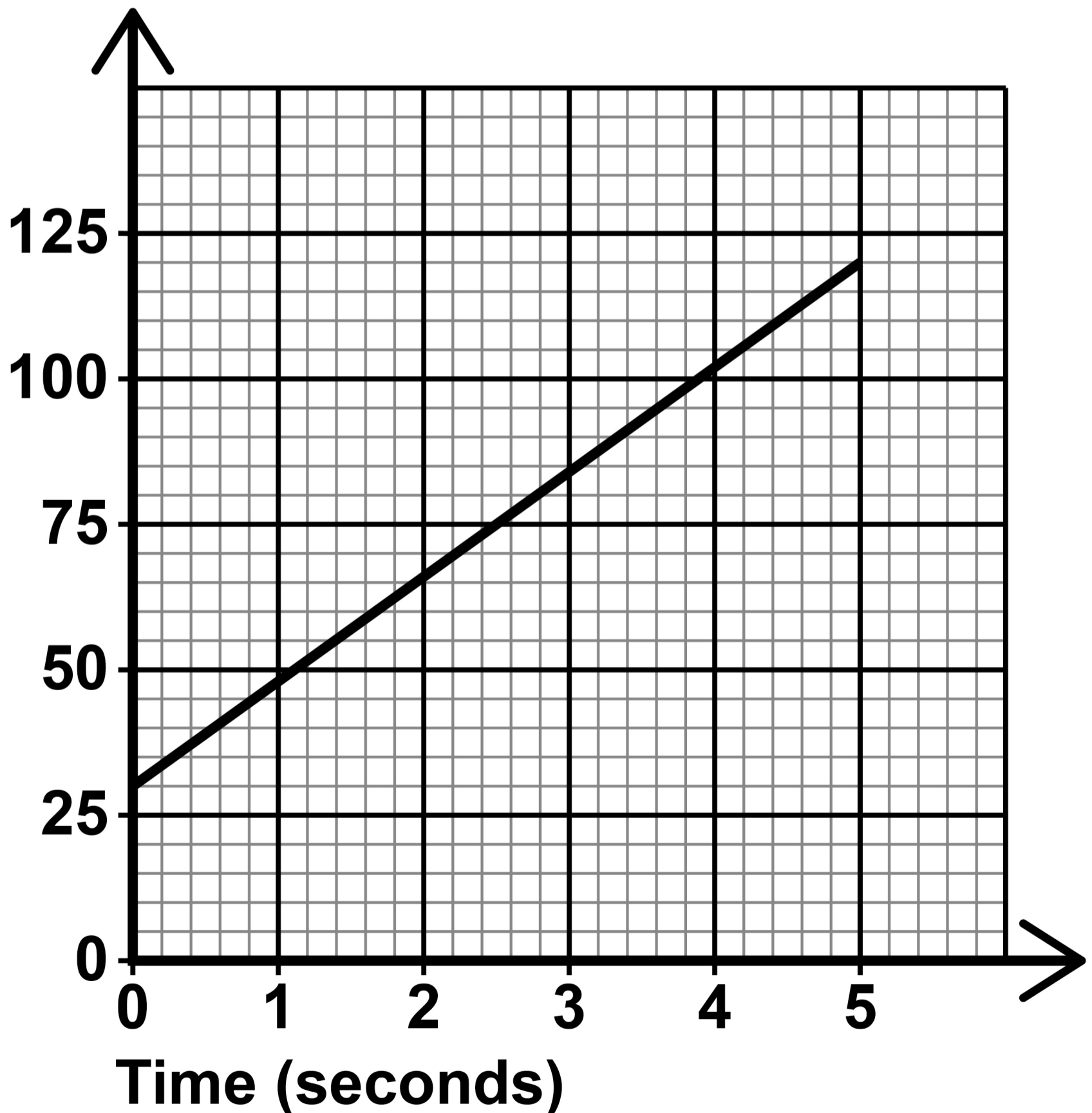
6



25 A lion is sprinting in a straight line away from its den.

The graph shows the lion's distance from the den.

**Distance from the den
(metres)**



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For Examiner's Use	
Pages	Mark
6–7	
8–11	
12–17	
18–21	
23–27	
28–31	
32–36	
38–43	
44–48	
49–53	
54–55	
TOTAL	

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