A

AQA

Surname _____

Other Names _____

Centre Number _____

Candidate Number _____

Candidate Signature _____

GCSE

MATHEMATICS

F

Foundation Tier Paper 1 Non-Calculator

8300/1F

Tuesday 21 May 2019   Morning

Time allowed: 1 hour 30 minutes

At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.

[Turn over]

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 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.

DO NOT TURN OVER UNTIL TOLD TO DO SO

Answer ALL questions in the spaces provided

1

Which type of angle is the largest?

Circle your answer. [1 mark]

right   **reflex**

obtuse   **acute**

2

Solve $4x = 8$

Circle your answer. [1 mark]

$x = 0.5$ $x = 2$ $x = 4$ $x = 32$

3

Work out 10 + (–4)

Circle your answer. [1 mark]

–14   **–6**   **6**   **14**

4

Circle the calculation which works out half of 12

[1 mark]

12 ÷ 0.5   **2 ÷ 12**

12 × $\frac{1}{2}$ **12 ÷ 50 × 100**

[Turn over]

5 (a)

Work out 364.5 + 17.9 – 2.08

[2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

5 (b)

Work out 9.36 × 2

[1 mark]

_____

_____

_____

_____

_____

Answer _____

7

[Turn over]

6

Five points are plotted on a grid.
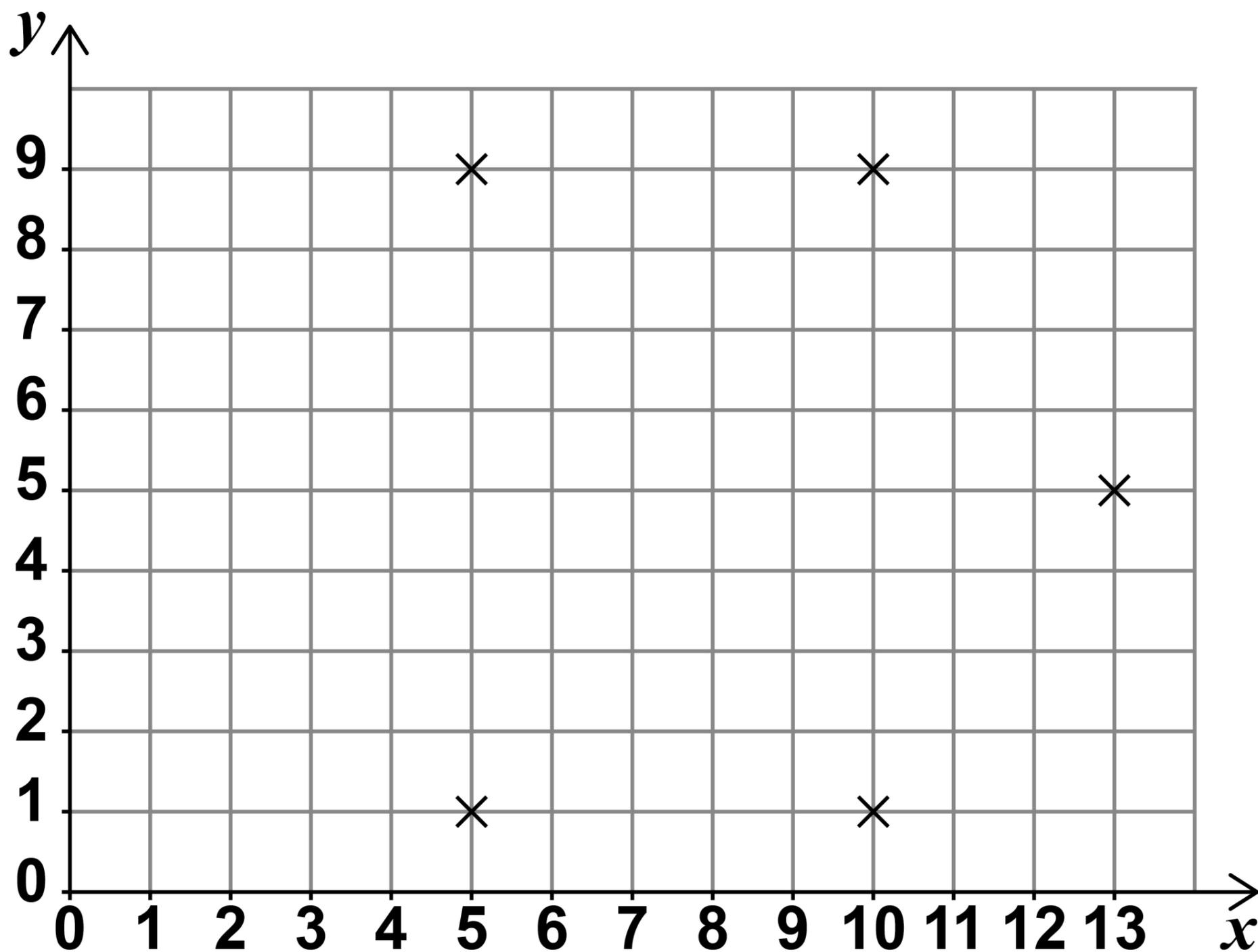
The points are five of the vertices of a hexagon.

Each side of the hexagon has the same length.

Work out ONE possible pair of coordinates of the other vertex. [2 marks]

_____

_____

_____

_____

_____

Answer (_____ , _____)

[Turn over]

7

Amy and Brad each have some money.

Carly has no money.

Amy gives £7 to Carly.

Brad gives £5 to Carly.

Now they all have the same amount of money.

How much money did Amy have to begin with? [2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

[Turn over]

$\overline{}$
4

8

A game is played 50 times.

The vertical line chart, on the opposite page, shows the winning scores.

8 (a)

Write down the mode. [1 mark]

Answer _____

8 (b)

The game is played again.

Use the chart to estimate the probability that the winning score is 25

[1 mark]

Answer _____

**Number
of games**
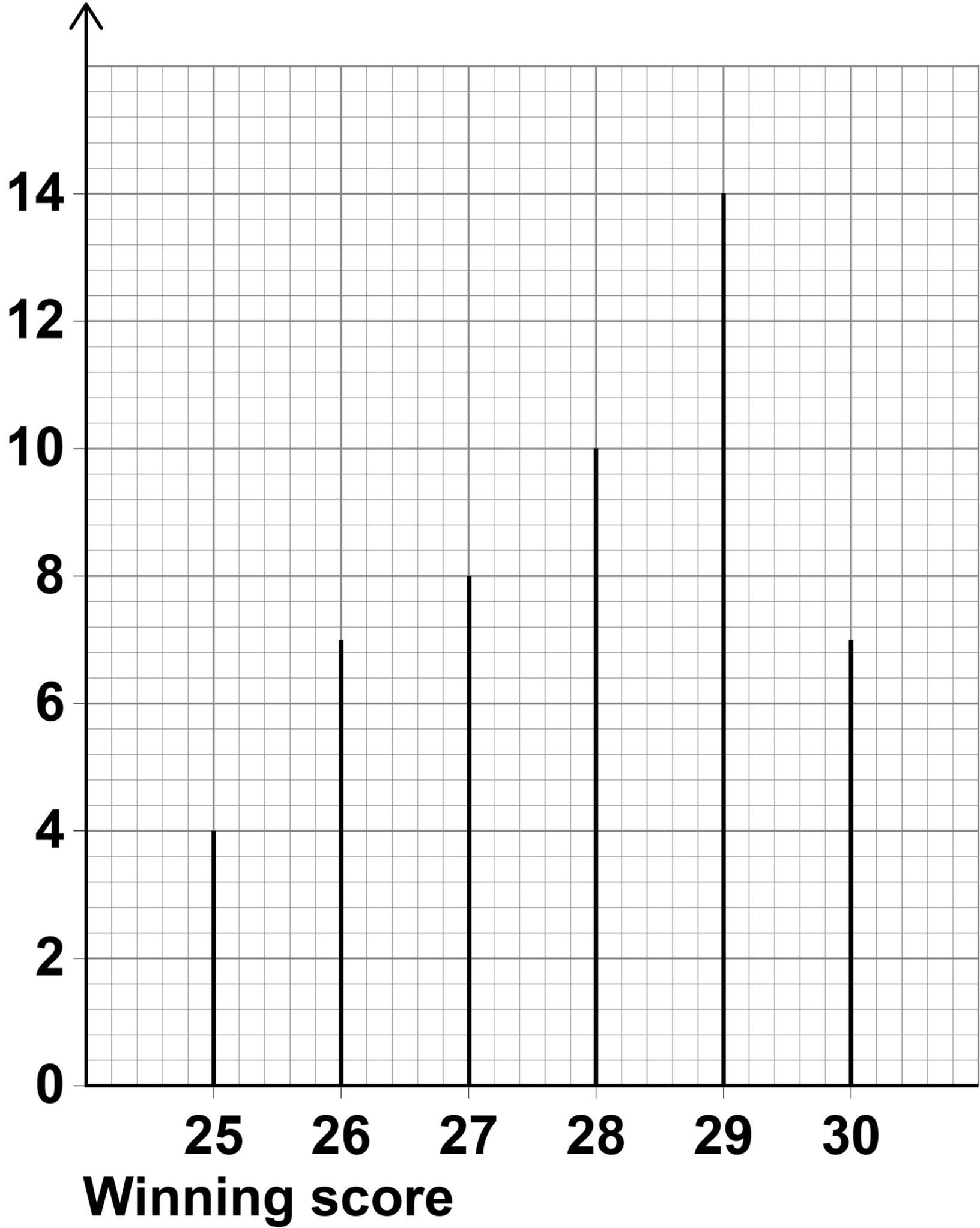
Winning score

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8 (c)

Use the chart, on page 13, to estimate the probability that the winning score is 27 or more. [2 marks]

_____

_____

_____

_____

Answer _____

[Turn over]

9 (a)

Write down ALL the factors of 18

[2 marks]

Answer _____

9 (b)

Work out the lowest common multiple (LCM) of 12 and 15

[2 marks]

_____

_____

_____

_____

_____

Answer _____

8

BLANK PAGE

[Turn over]

10

Coaches take people to a festival.

Each coach can take 50 people.

10 (a)

From one city there are 820 people.

How many coaches are needed?
[3 marks]

_____

_____

_____

_____

_____

_____

Answer _____

10 (b)

From a different city 13 coaches are needed.

Each coach costs £450 to hire.

Work out the total cost of hiring 13 coaches. [3 marks]

_____

_____

_____

_____

_____

_____

_____

Answer £ _____

[Turn over]

6

11

Here is a triangle on a square dotty grid.
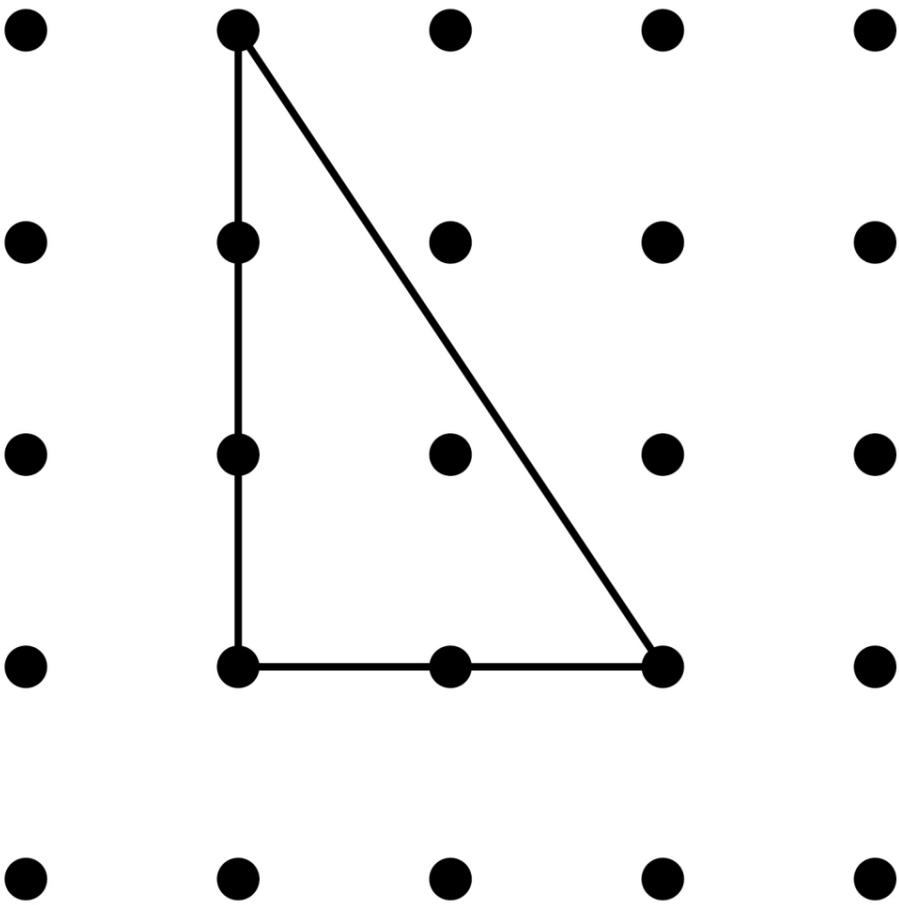
11 (a)

On the grid below, show how you can make a parallelogram with TWO of these triangles. [1 mark]
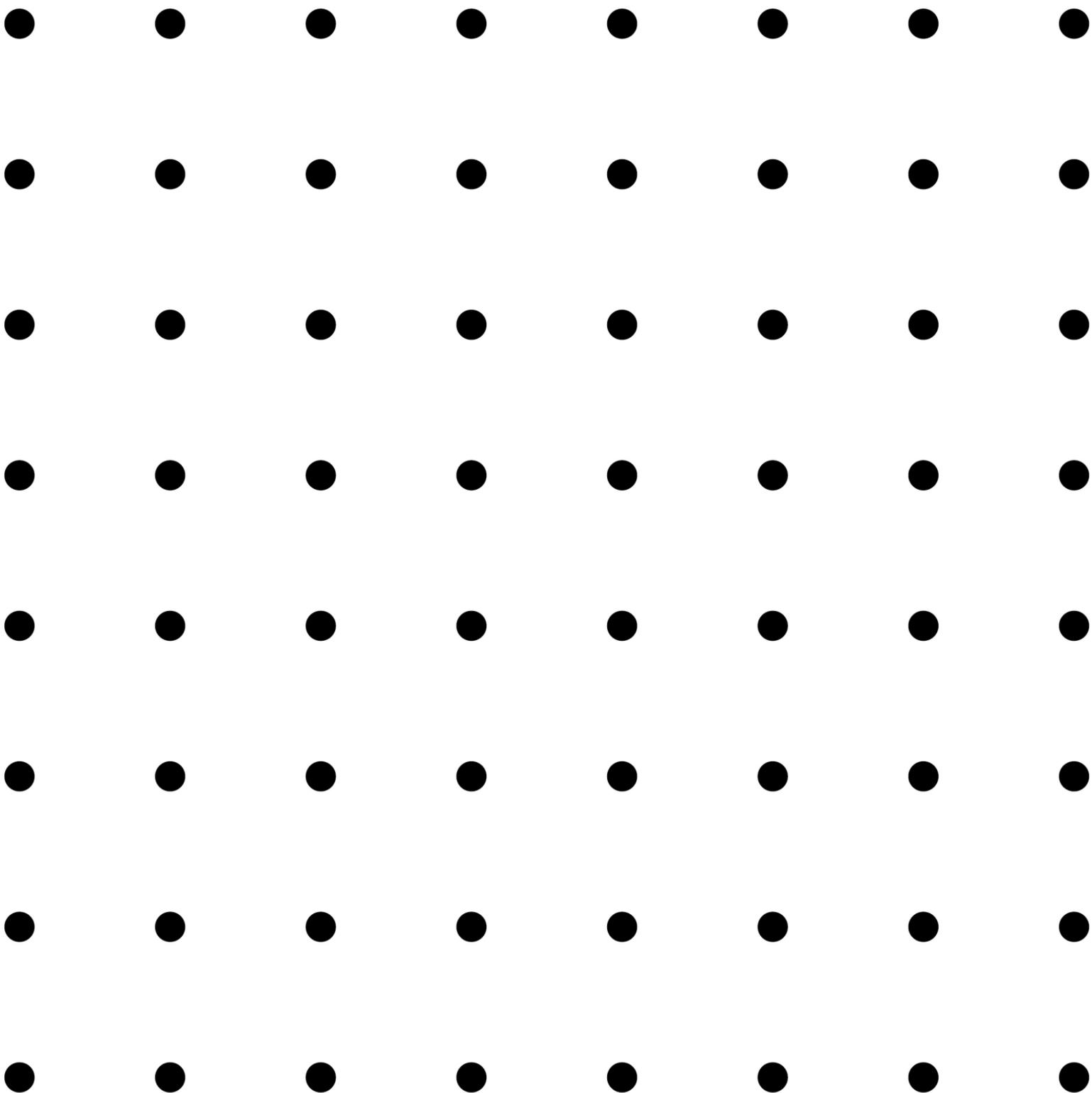
11 (b)

On the grid below, show how you can make a trapezium with THREE of these triangles. [1 mark]

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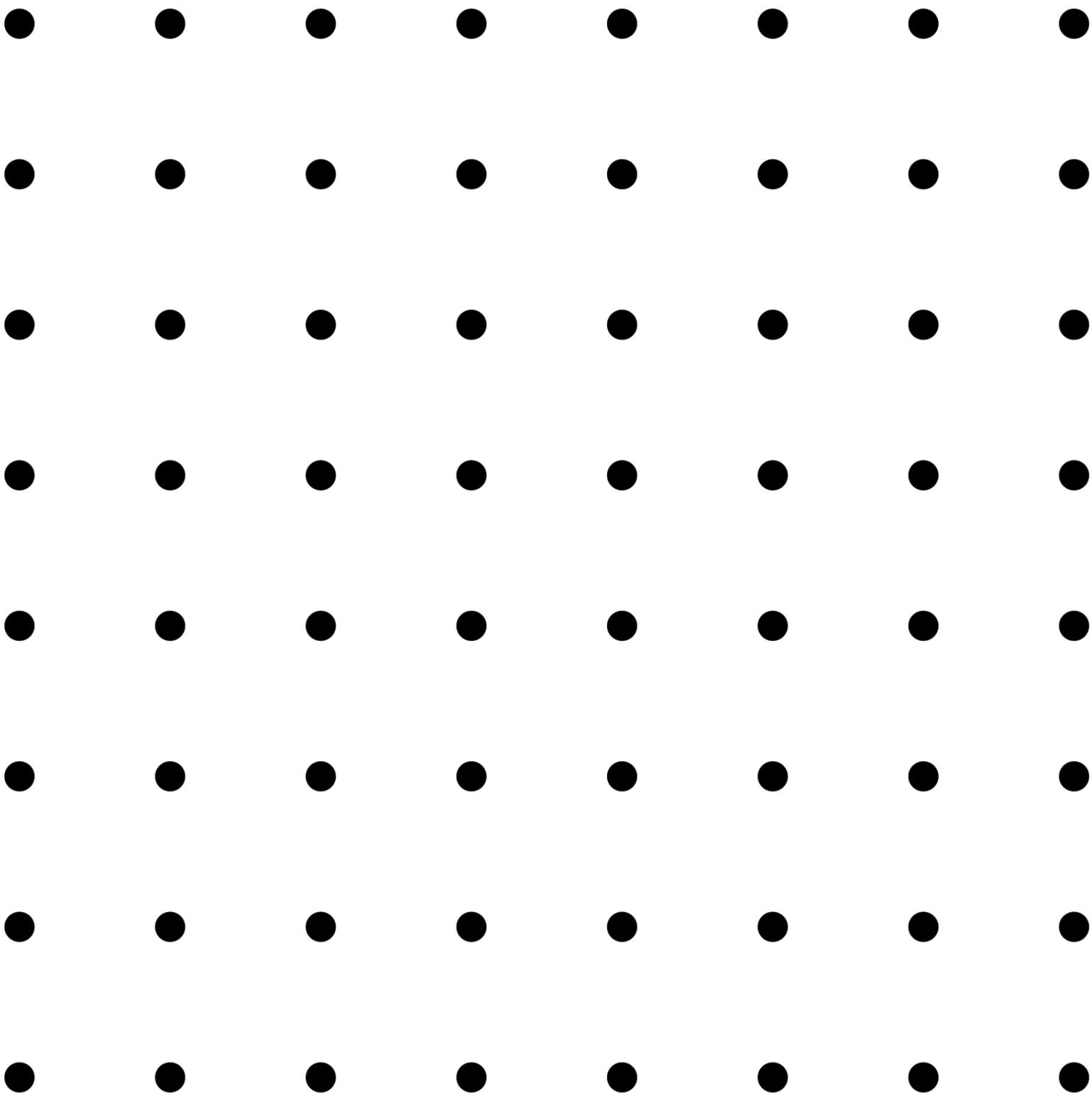
11 (c)

On the grid below, show how you can make a rhombus with FOUR of these triangles. [1 mark]

- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●
- ● ● ● ● ● ● ● ●

[Turn over]

12

Work out 65% of 300

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____
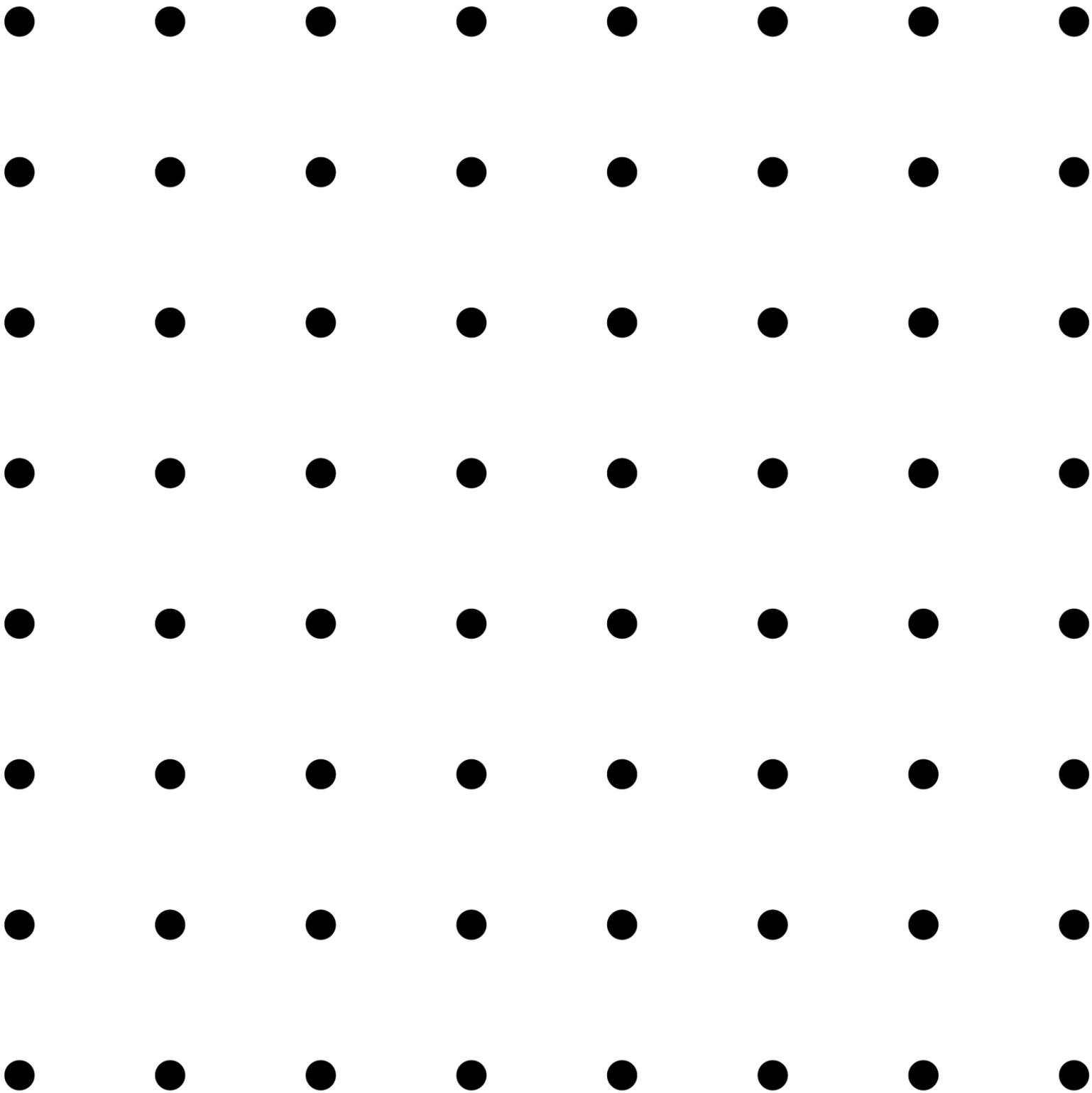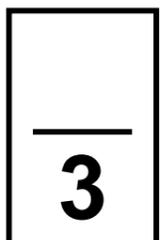
Answer _____

13

In a game the average score was 50

Tom's score was $\dfrac{5}{2}$ of the average.

Circle Tom's score. [1 mark]

125   175   30   20

[Turn over]

14

Here is a cuboid.

It is not drawn accurately.

10 cm

5 cm

7 cm
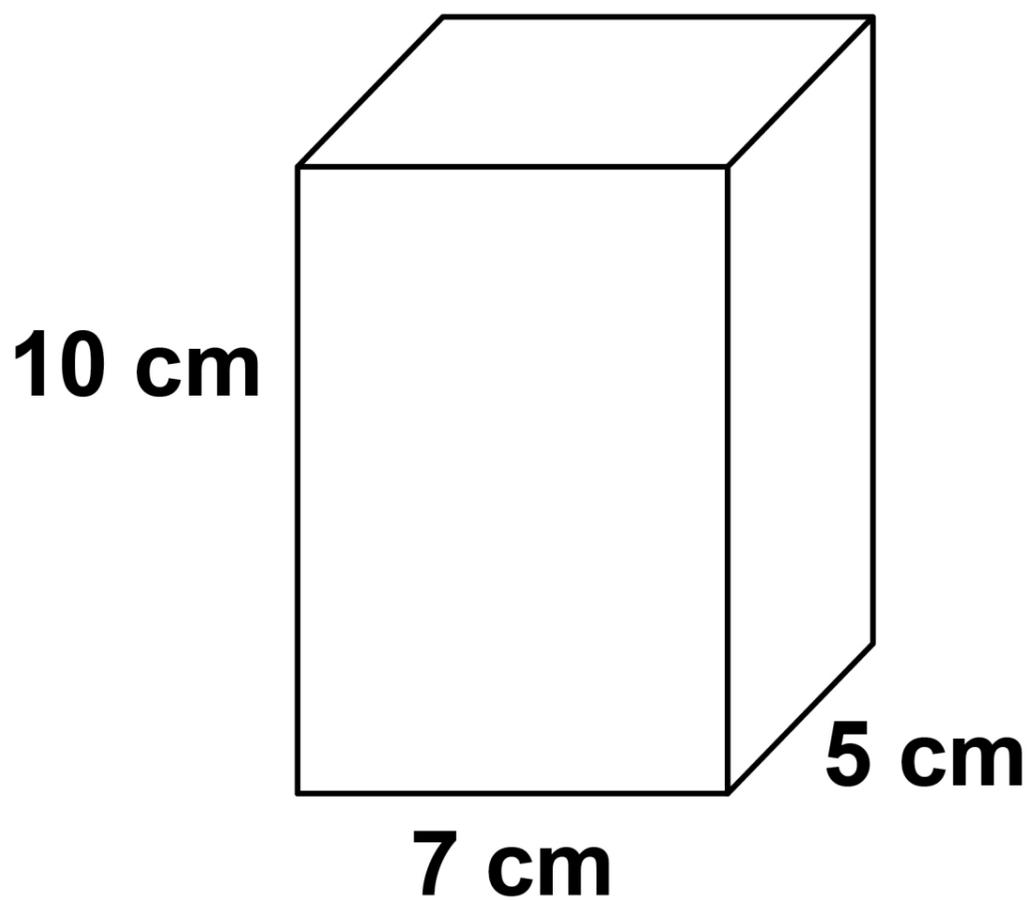
Work out the volume. [2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____ **cm^3**

15

Circle the shape that has a uniform cross section. [1 mark]

cone   **sphere**

cylinder   **pyramid**

[Turn over]

$\overline{7}$

16 (a)

Here is a map showing points *A* and *B*.

N

A×

×B
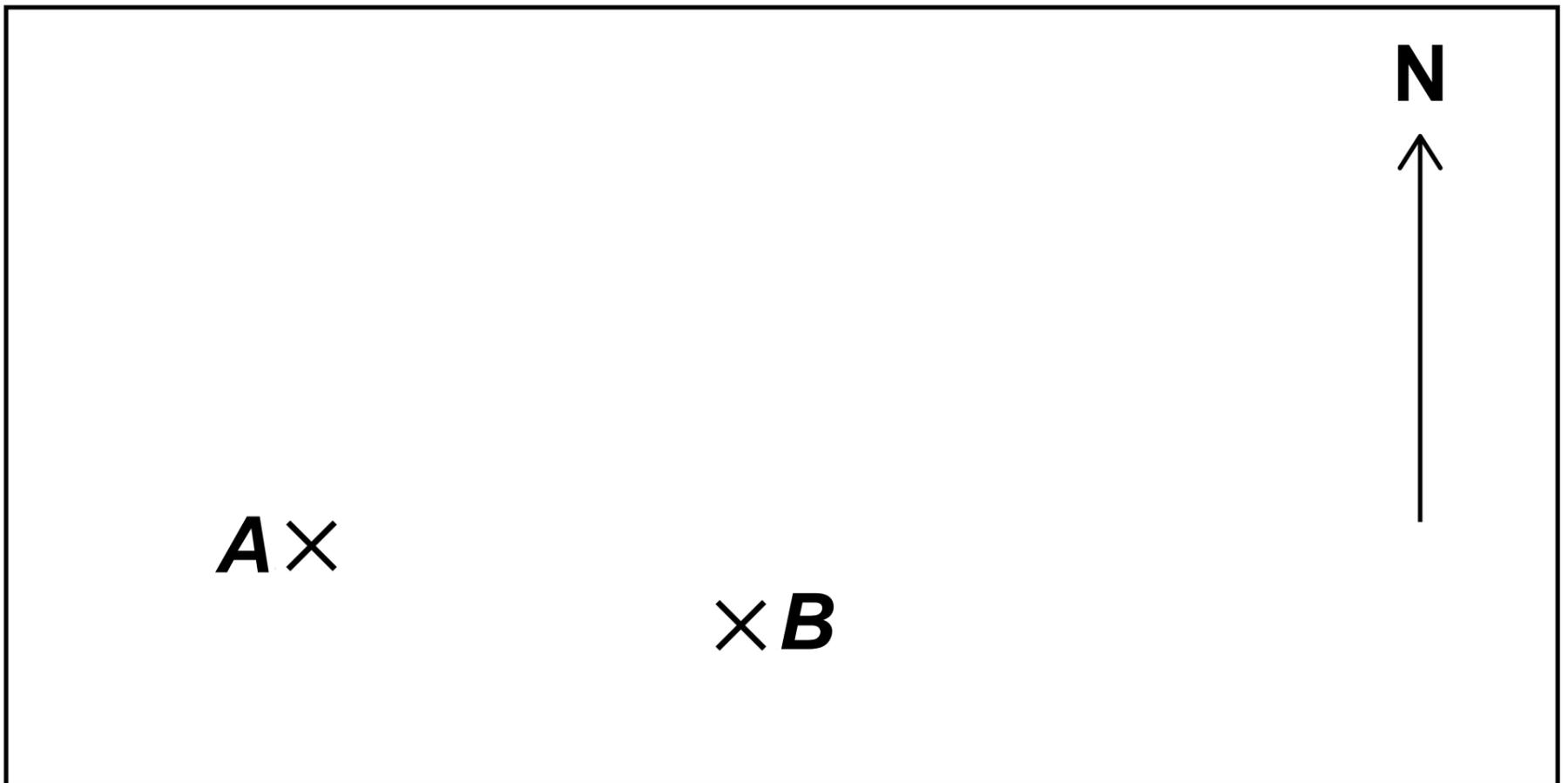
**Kemal wants to measure the bearing of
A FROM *B*.**

**He draws two lines and measures the
angle between them.**
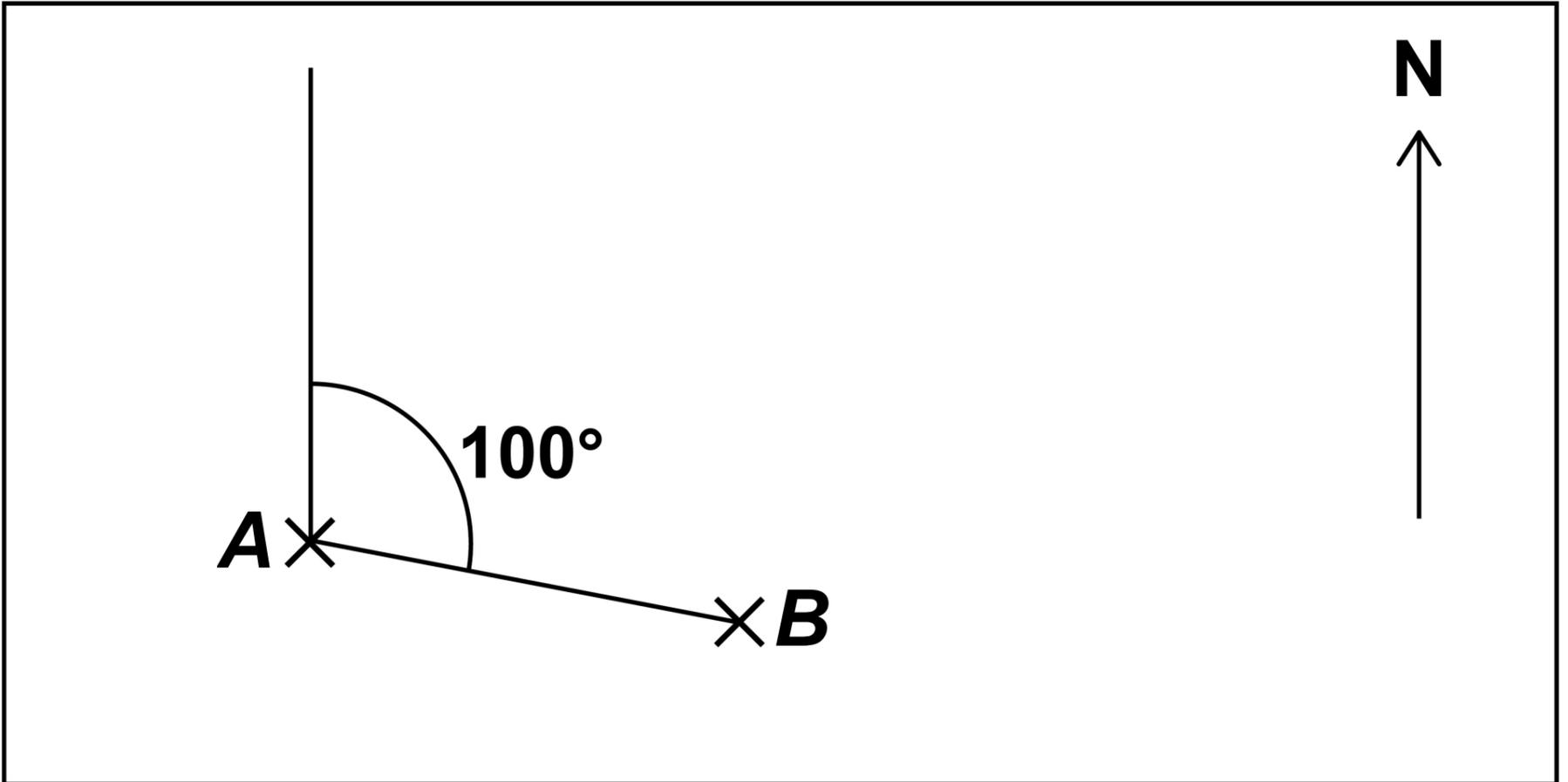
Kemal says that the bearing of *A* from *B* is 100°

Is his method correct?

Give a reason for your answer. [1 mark]

_____

_____

_____

_____

_____

16 (b)

On a different map, the bearing of *D* from *C* is 045°

Nina says,

"*D* is North West of *C*."

Is Nina correct?

Give a reason for your answer. [1 mark]

_____

_____

_____

16 (c)

The map on page 31 shows an airport, *E*, on an island.

Scale: 1 cm represents 100 km

Take this line to represent 1 cm ⎯
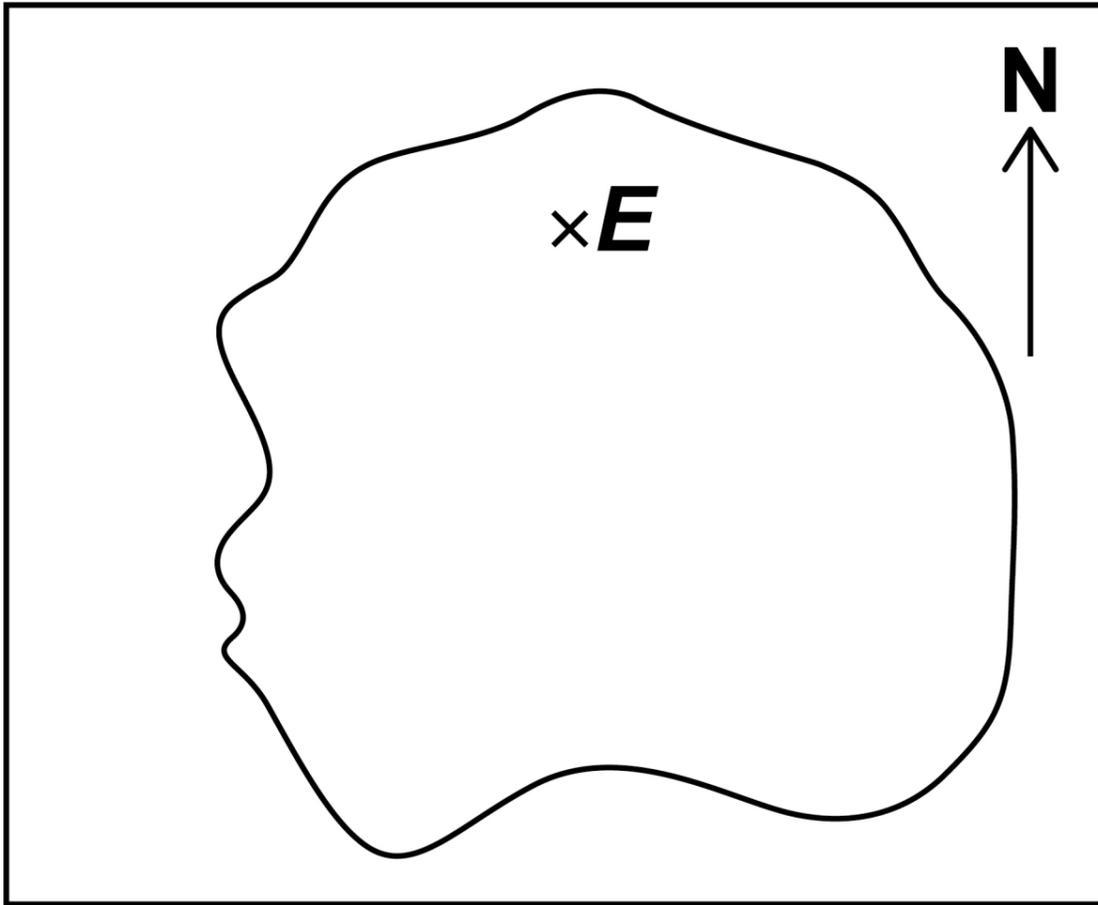
A plane flies due South from the airport.

How far does it fly until it reaches the sea? [3 marks]

_____

_____

Answer _____ **km**

[Turn over]

5

17 (a)

Simplify fully 56 : 24

[2 marks]

_____

_____

_____

_____

_____

Answer _____ : _____

17 (b)

Write the ratio 5 : 4 in the form $n : 1$

[1 mark]

_____

_____

_____

_____

_____

Answer _____ : _____

[Turn over]

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17 (c)

Share £180 in the ratio 1 : 9

[2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer £ _____ and £ _____

[Turn over]

18

Here is some data about the people listening to a radio station one day.

	Percentage	Mean number of hours listening	Range of number of hours listening
Aged 40 or under	21	1.2	4.5
Aged 41 or over	79	6.3	13.9

Compare the data for people aged 40 or under with the data for people aged 41 or over.

Make THREE comparisons. [3 marks]

Comparison 1 _____

_____

_____

Comparison 2 _____

_____

_____

Comparison 3 _____

_____

_____

[Turn over]

$\overline{8}$

19

You are given that $4a - 2b = 10$

19 (a)

Write down the value of $2a - b$

[1 mark]

Answer _____

19 (b)

Write down the value of $2b - 4a$

[1 mark]

Answer _____

19 (c)

You are given that $4a - 2b = 10$ AND $a + c = 3$

Write an expression in a, b and c that is equal to 23

Give your answer in its simplest form.

You MUST show your working. **[2 marks]**

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

20 (a)

Write 0.000 97 in standard form. [1 mark]

Answer _____

20 (b)

Work out $\dfrac{3 \times 10^5}{4 \times 10^3}$

Give your answer as an ordinary number.
[2 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

[Turn over]

7

21

Anna plays a game with an ordinary, fair dice.

If she rolls 1 she wins.

If she rolls 2 or 3 she loses.

If she rolls 4, 5 or 6 she rolls again.

When she has to roll again,

if she rolls an odd number she wins

if she rolls an even number she loses.

21 (a)

Complete the tree diagram on the opposite page with the four missing probabilities. [2 marks]

First roll   **Second roll**

1

_____

2 or 3

_____

$\dfrac{1}{2}$

4, 5 or 6

_____ Odd

_____ Even

[Turn over]

BLANK PAGE

21 (b)

Is Anna more likely to win or to lose?

You MUST work out the probability that she wins. [4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

[Turn over]

6

22

Three friends arrive at a party.

Their arrival increases the number of people at the party by 20%

In total, how many people are now at the party? [2 marks]

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

23

Work out the value of $(3^{12} \div 3^5) \div (3^2 \times 3)$

[3 marks]

_____

_____

_____

_____

_____

_____

_____

_____
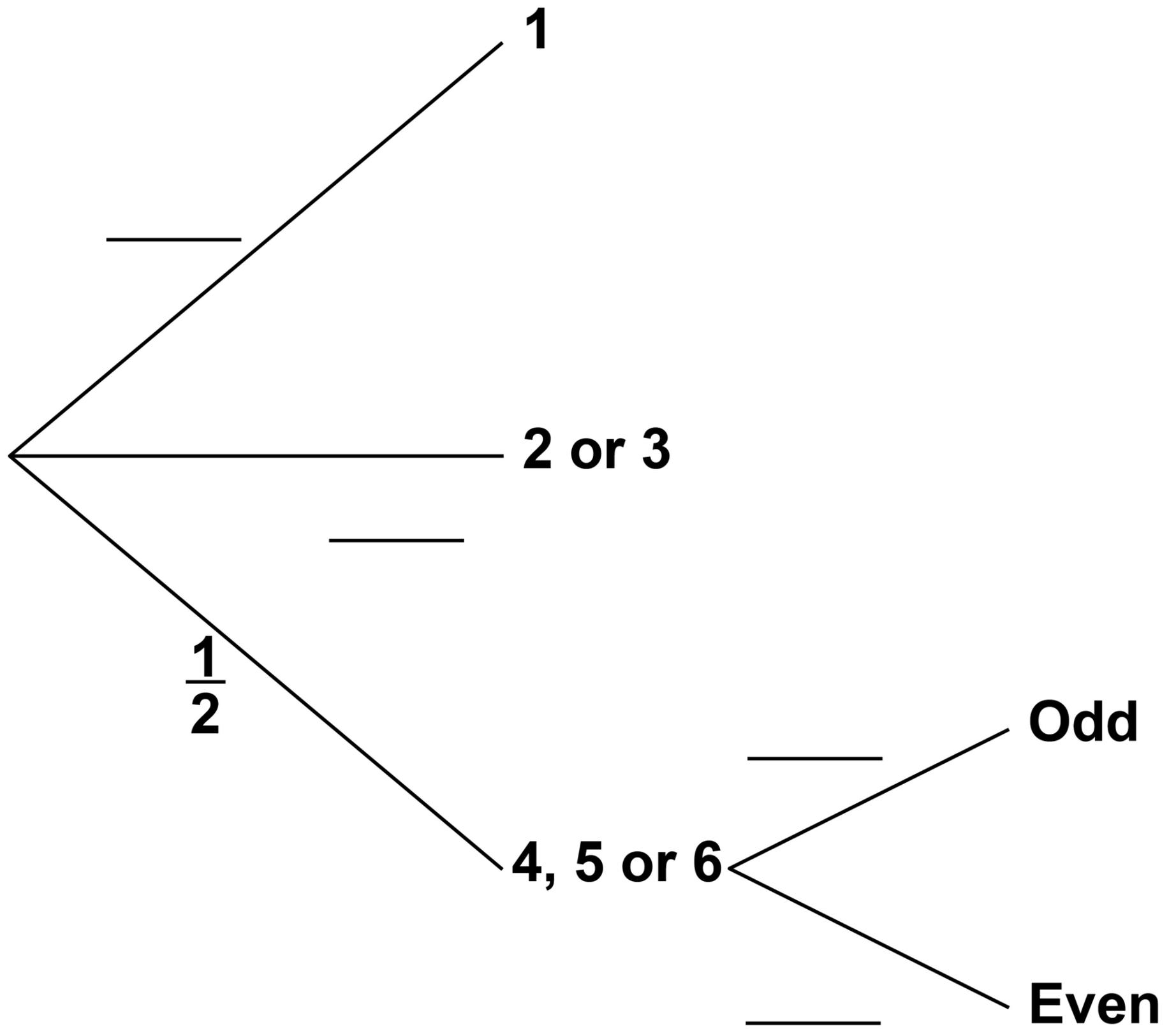
Answer_____

[Turn over]

24 (a)

$a + b = 0$

Which of these is equal to b?

Circle your answer. [1 mark]

0 $\dfrac{1}{a}$ a $-a$

24 (b)

$c \times d = 1$

Which of these is equal to d?

Circle your answer. [1 mark]

1 $\dfrac{1}{c}$ c $-c$

7

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[Turn over]

25

A shaded semicircle is inside a circle as shown.

It is not drawn accurately.
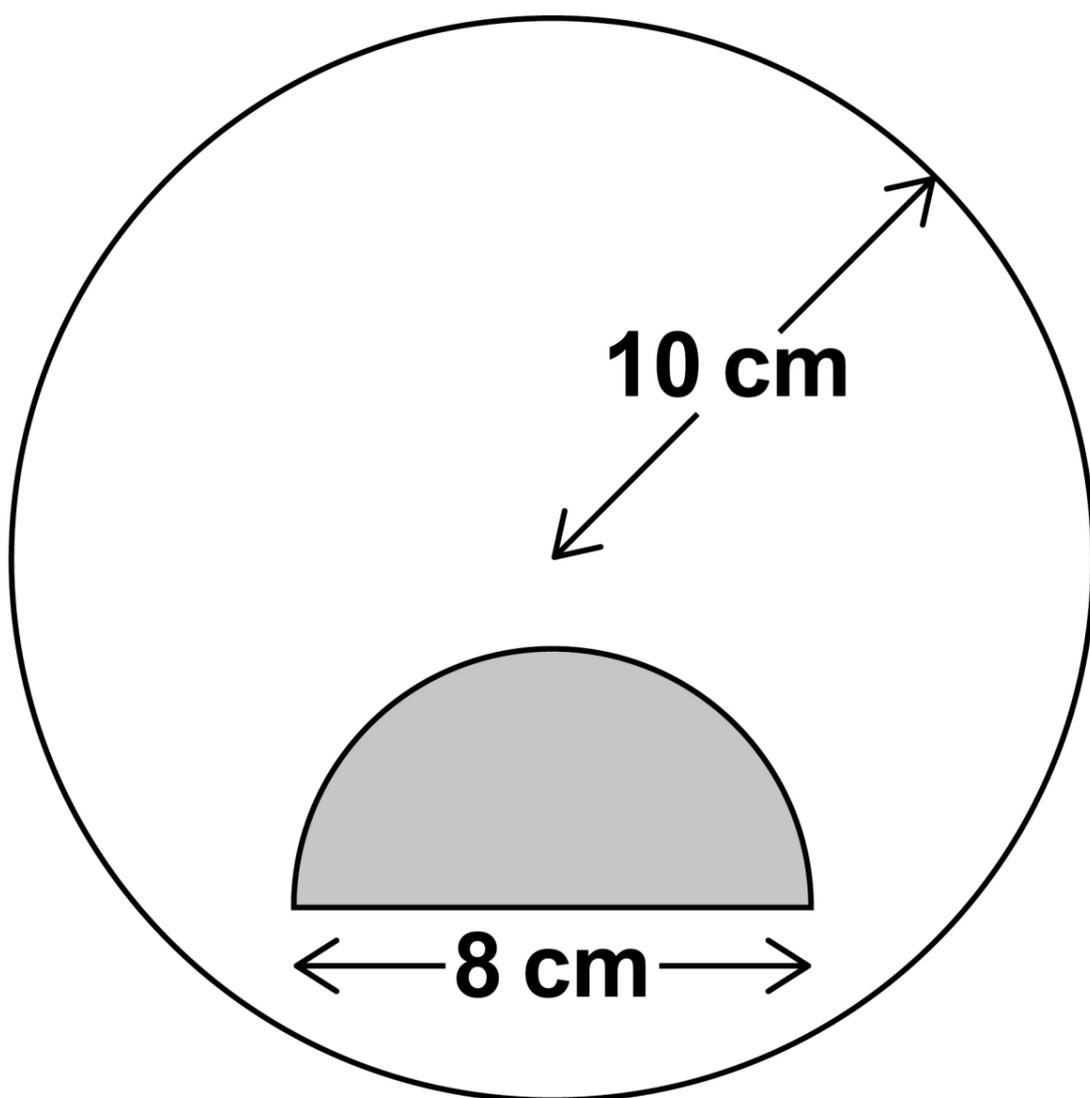
The RADIUS of the circle is 10 cm

The DIAMETER of the semicircle is 8 cm

How many times bigger is the unshaded area than the shaded area? [4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

[Turn over]

26

The number of items, n, made in 1 hour by a machine is given by

$$n = \frac{60}{t}$$

t is the time in minutes the machine takes to make one item.

The value of t changes for different types of item.

26 (a)

On the grid opposite, draw the graph of $n = \dfrac{60}{t}$ for values of t from 1 to 4

[2 marks]

Number of items, n, made in 1 hour

70

60

50

40

30

20

10

0

0   1   2   3   4
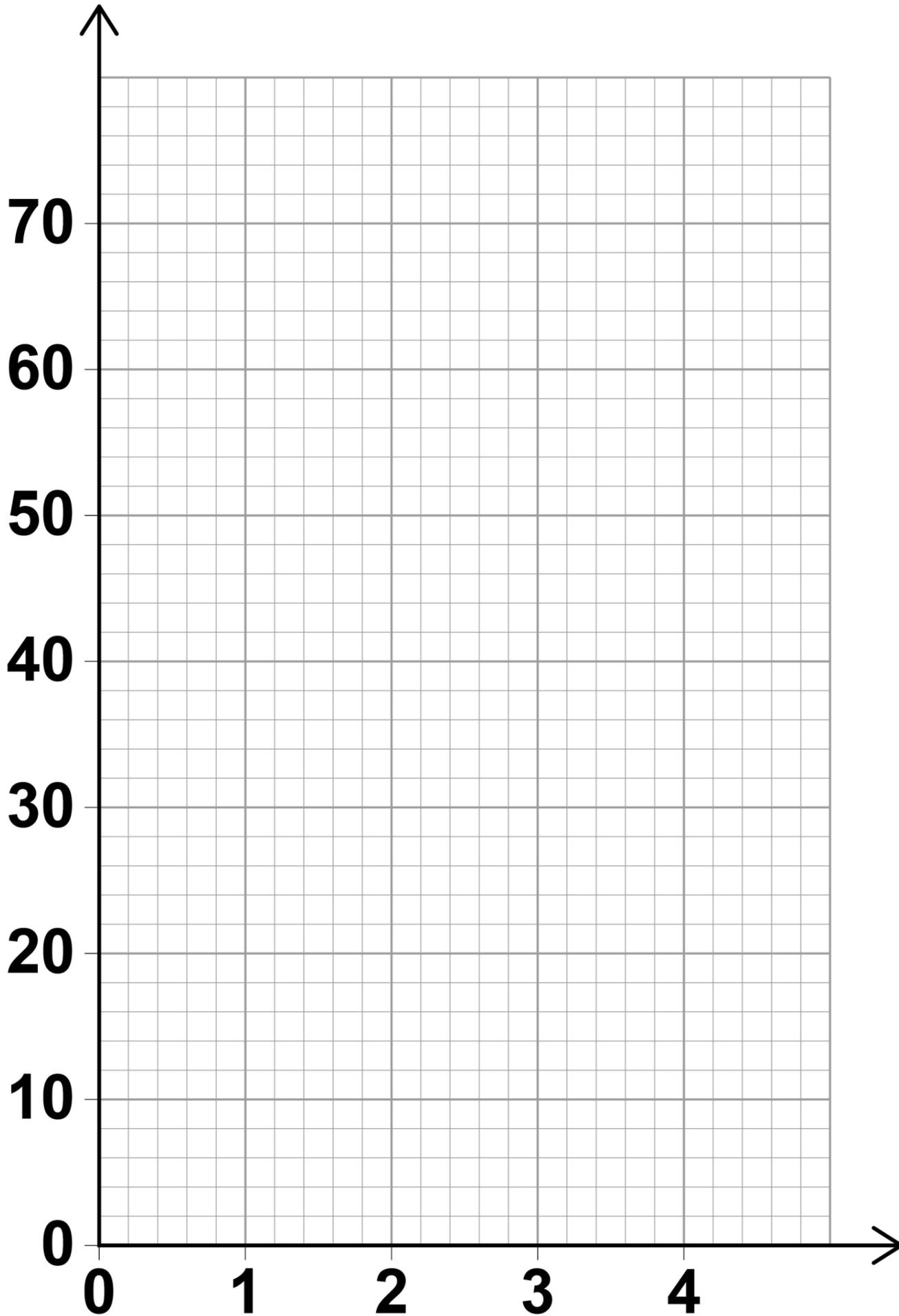
Time, t, (minutes) to make one item

5 3

BLANK PAGE

26 (b)

The machine takes 3 minutes 30 seconds to make one item.

USE YOUR GRAPH, on page 53, to estimate the value of n.

[2 marks]

Answer _____

8

[Turn over]

27

Rearrange $x = 2y - 6$ to make y the subject. [2 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

28

Multiply out and simplify $(x + 5)(x - 1)$
[2 marks]

_____

_____

_____

_____

_____

_____

_____

Answer _____

$$\overline{4}$$

END OF QUESTIONS

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