



General Certificate of Secondary Education
2019

Centre Number

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Candidate Number

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Mathematics

Unit M6 Paper 1
(Non-Calculator)
Foundation Tier



MV24

[GMC61]

THURSDAY 6 JUNE, 9.15am–10.15am

Time

1 hour, plus your additional time allowance.

Instructions to Candidates

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided. Do not write on blank pages or tracing paper.

Complete in black ink only.

Answer **all sixteen** questions.

All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.

You **must not** use a calculator for this paper.

Information for Candidates

The total mark for this paper is 50.

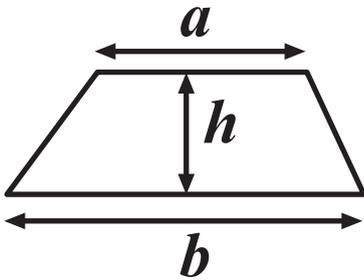
Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

You should have a ruler, compasses and a protractor.

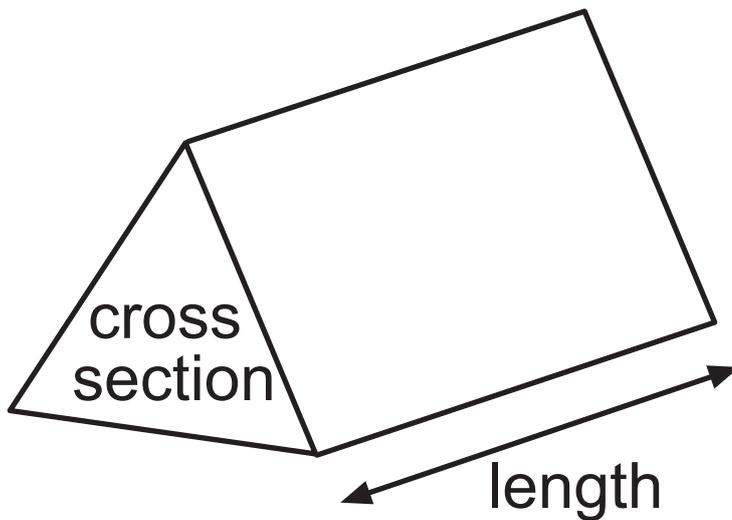
The Formula Sheet is on page 3.

Formula Sheet

Area of trapezium = $\frac{1}{2} (a + b)h$



Volume of prism = area of cross section \times length



1 Anna buys these items for lunch.

Chicken Sandwich	£2.95
Banana	£0.89
Cup of coffee	£1.75
Bottle of water	£1.20

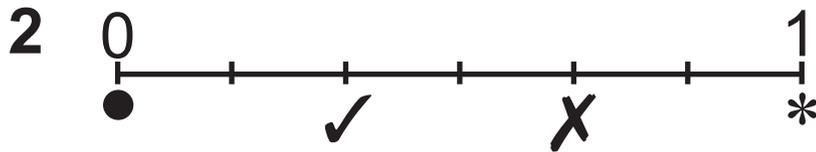
She pays with a £10 note.

She gets £2.21 change.

Is this change correct? [3 marks]

Show your working out.

Answer _____ because _____



One letter is taken at random from the word **COMMON**.

Which of \bullet , \checkmark , \times , $*$ shows the probability that the letter is

(a) M,

Answer ____ [1 mark]

(b) T,

Answer ____ [1 mark]

(c) a letter that appears twice in **COMMON,**

Answer ____ [1 mark]

(d) a letter in the word **MONOCLE?**

Answer ____ [1 mark]

3 (a) Fill in the next two terms of this sequence. [2 marks]

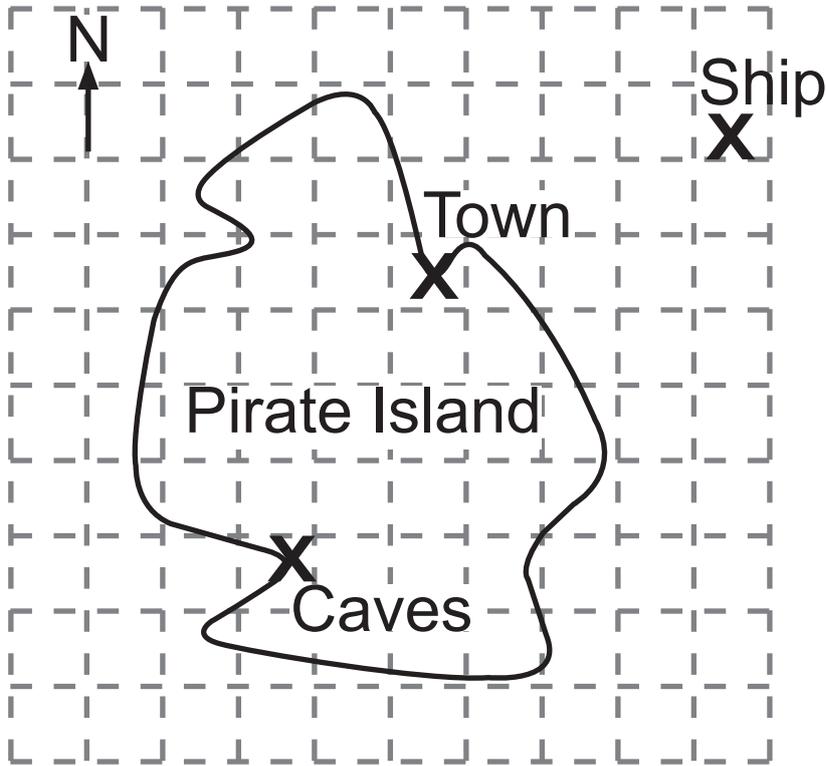
14, 13, 11, 8, ,

(b) Write down the name of the numbers in the sequence below. [1 mark]

1, 8, 27, 64, ...

Answer _____

4



Scale
1 cm = 2 km

- (a) Use the scale to find the distance from the town to the caves. [2 marks]

Answer _____ km

- (b) Mark, with an X, the position of the buried treasure which is 6 km due South of the town. [1 mark]

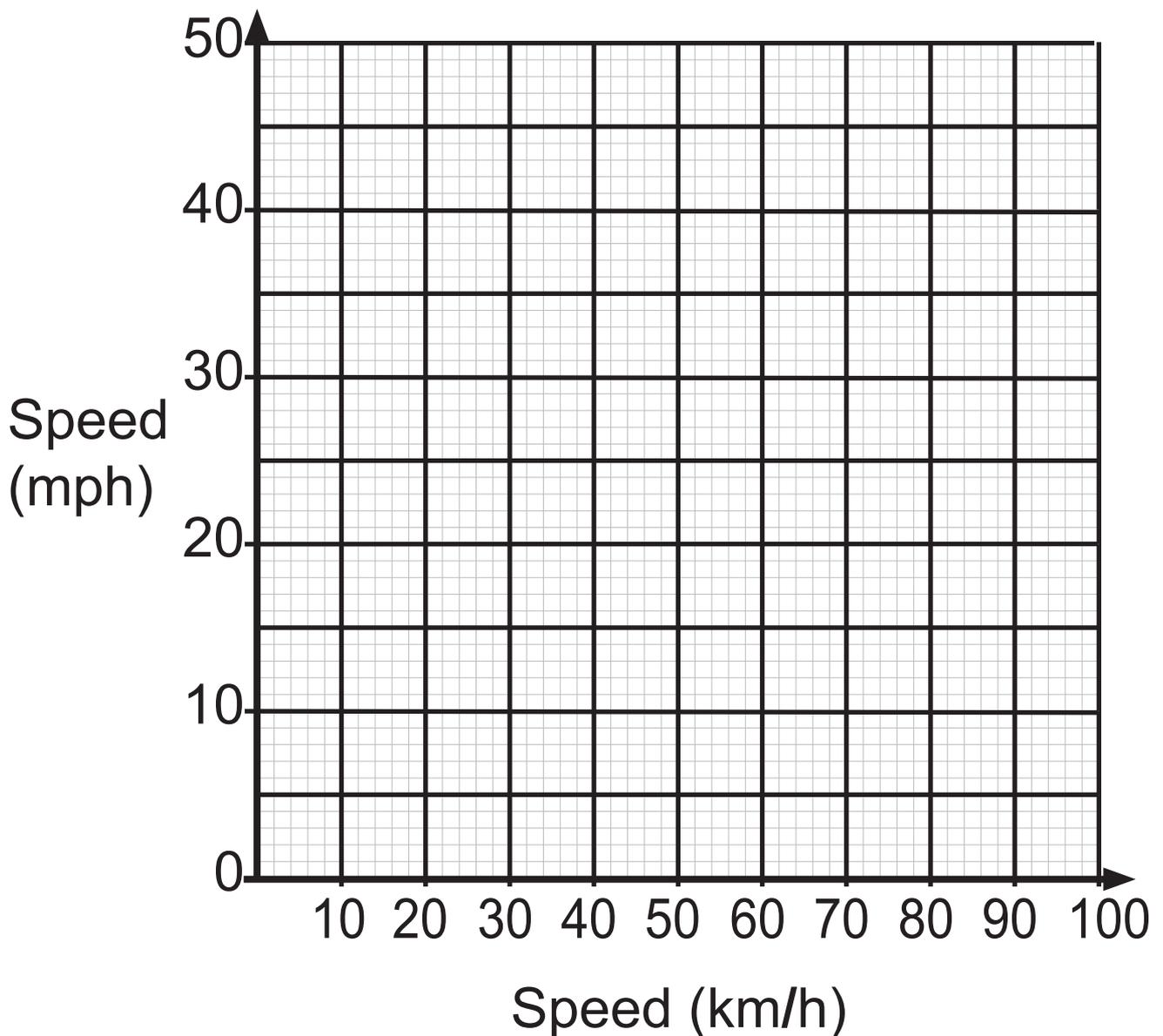
- (c) Measure and write down the bearing of the ship from the town. [2 marks]

Answer _____ °

5 Speed can be measured in kilometres per hour (km/h) or miles per hour (mph).

(a) Use the values in the table to draw a conversion graph. [2 marks]

Speed (km/h)	0	40	80
Speed (mph)	0	25	50



(b) Jonah is travelling at 50 km/h.

Is he breaking the 30 mph speed limit?

[1 mark]

You **must use** your graph to help explain your answer clearly.

Answer _____ because _____

6 Tom bought a full bag of coal.

After one week the bag was $\frac{2}{3}$ full.

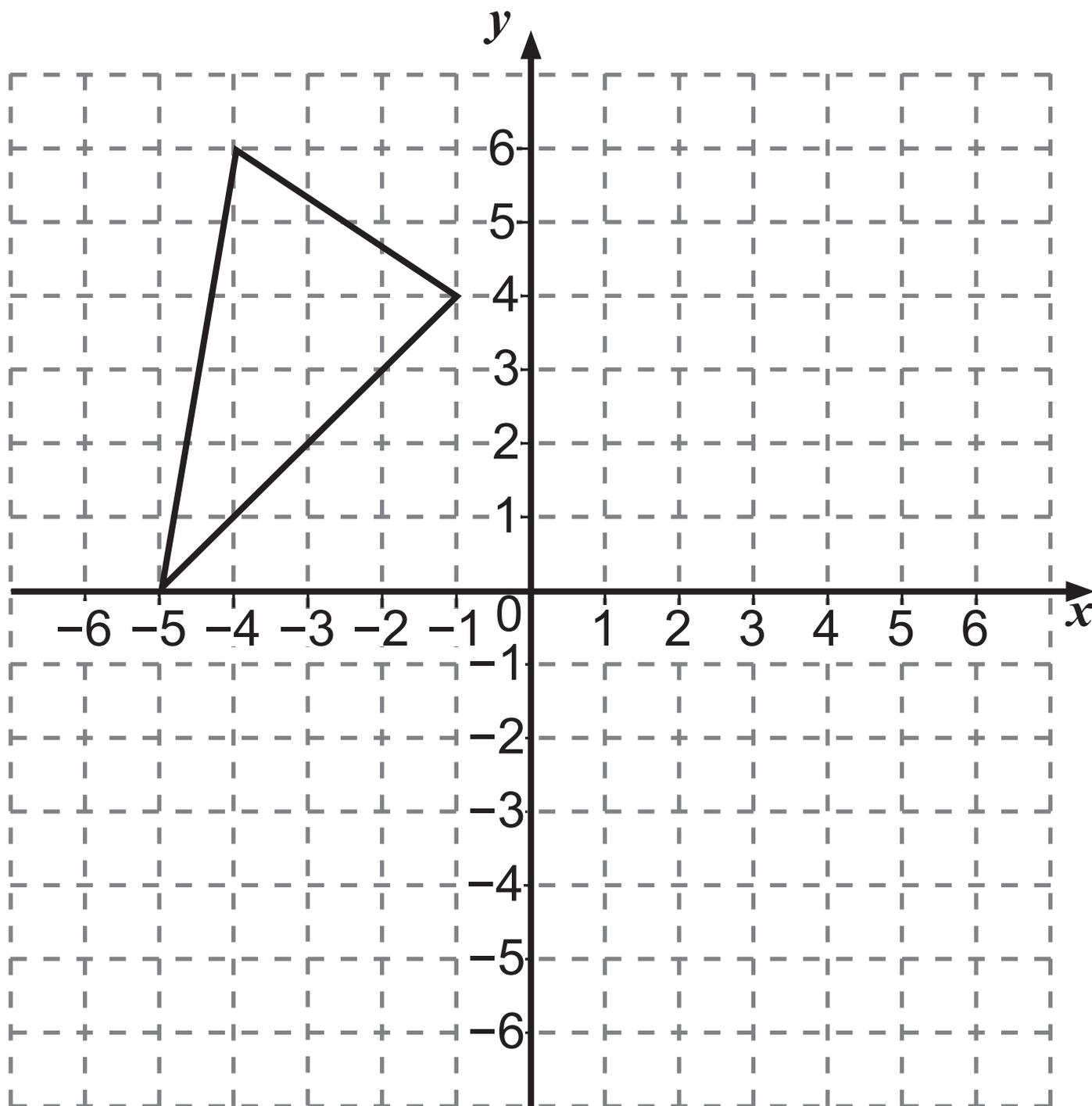
During the next week he used $\frac{1}{4}$ of the remaining coal.

What fraction was left in the bag?

[2 marks]

Answer _____

- 7 Reflect the triangle shown in the y -axis.
[1 mark]



- 8 (a) Calculate the size of angle x .
[2 marks]

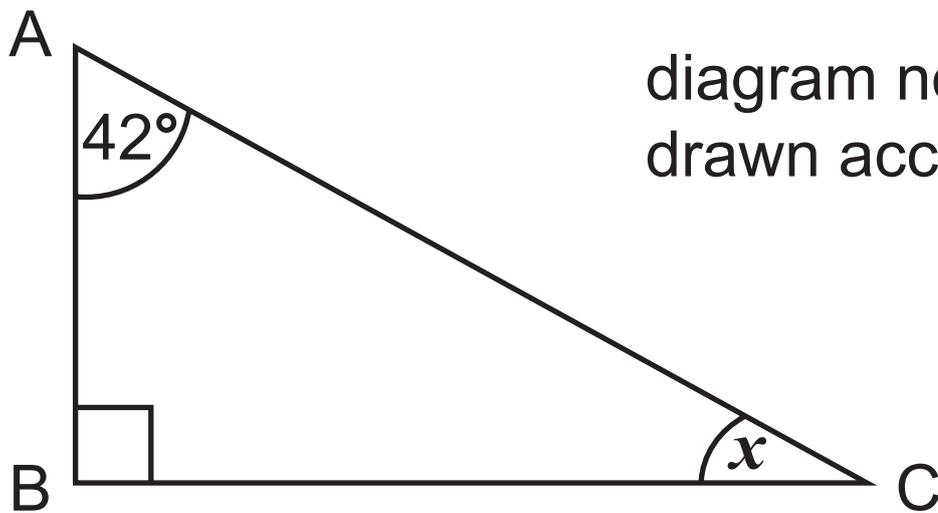
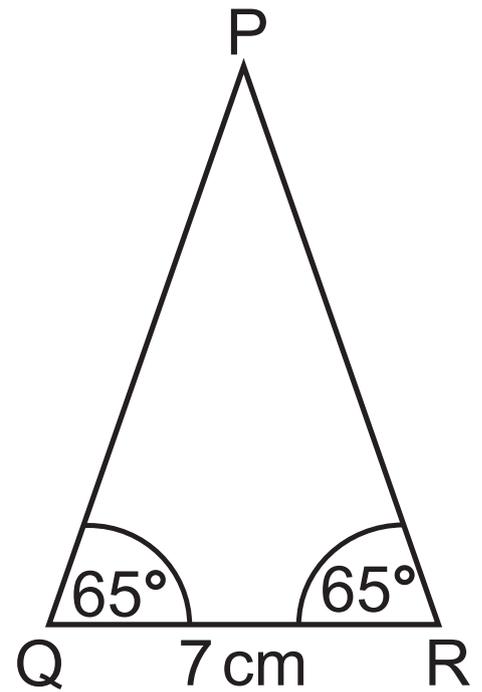


diagram not
drawn accurately

Answer _____ $^\circ$

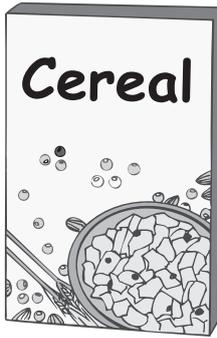
(b) Make an accurate drawing of the triangle sketched below. [3 marks]



Q ×

Blank Page
(questions continue overleaf)

9 A machine fills boxes of breakfast cereal.



Each box should weigh 375 g.

Jason takes 100 boxes and tests the accuracy of the machine by weighing them.

Weight (g)	Less than 375	Exactly 375	More than 375
Number of boxes	9	58	33

(a) What is the probability that one of the boxes taken by Jason weighs less than 375 g? [1 mark]

Answer _____

(b) The machine fills 5000 boxes.

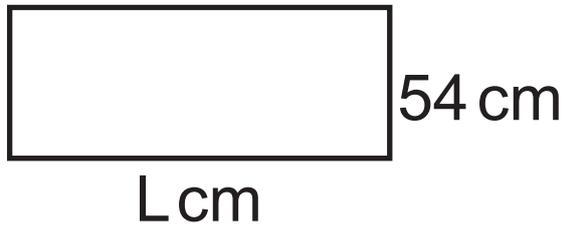
Calculate the number of boxes you would expect to weigh less than 375 g.
[2 marks]

Answer _____

10 Rewrite $4 + x = 9 - y$
to make y the subject.

Give your answer in its simplest form.
[2 marks]

Answer $y =$ _____

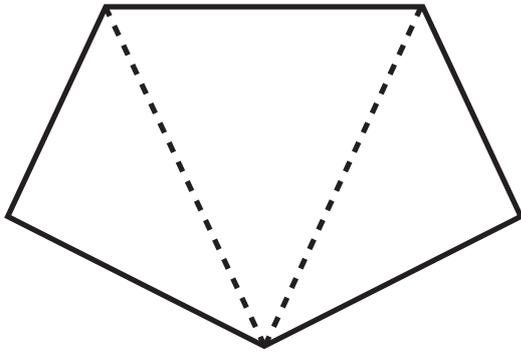


The two rectangles above have the same area.

Using estimation, work out an estimate for the length, L , of the second rectangle.
[2 marks]

Answer $L = \underline{\hspace{2cm}}$ cm

12



(a) (i) What is the total of all the angles in the three triangles shown? [1 mark]

Answer _____ °

(ii) What is the sum of the interior angles of a five-sided polygon? [1 mark]

Answer _____ °

(b) What is the sum of the interior angles of a seven-sided polygon? [2 marks]

Answer _____ °

13 Solve

$$8x < 6x + 7 \quad [2 \text{ marks}]$$

Answer _____

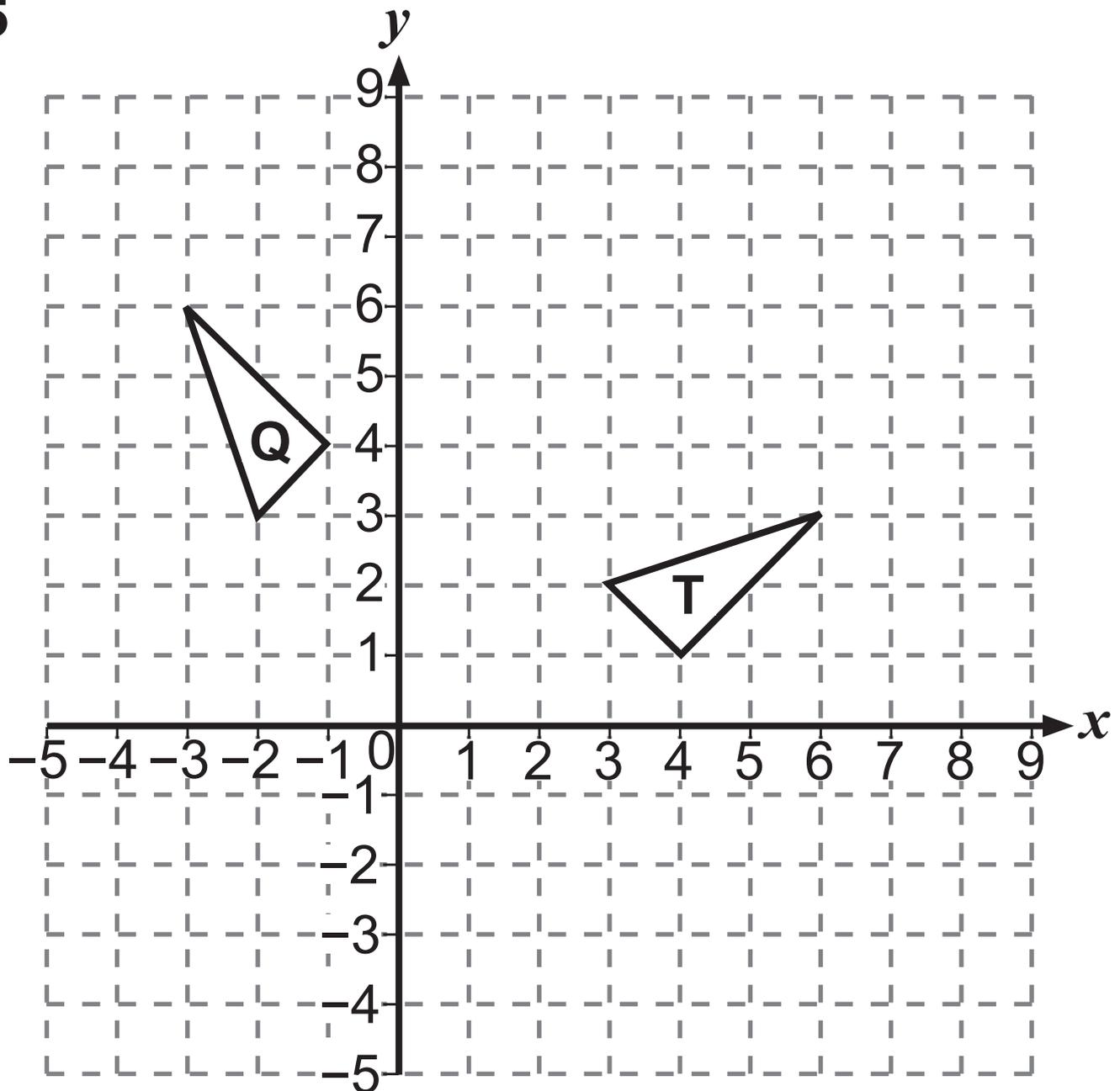
14 (a) Write the binary number 10101 as a decimal number. [1 mark]

Answer _____

(b) Write the decimal number 26 as a binary number. [1 mark]

Answer _____

15



- (a) Describe fully the **single** transformation which maps triangle **T** onto triangle **Q**.
[3 marks]

Answer _____

- (b) On the grid, draw the image of triangle **T** after a translation $\begin{pmatrix} 2 \\ -5 \end{pmatrix}$. [2 marks]

16 A six-sided dice is rolled 800 times.

The table below shows the relative frequency of scoring a six after different numbers of rolls.

Number of rolls	Relative frequency of a six
100	0.3
200	0.26
300	0.27
500	0.23
800	0.25

(a) How many times was a six scored after 300 rolls? [2 marks]

Show how you obtained your answer.

Answer _____

(b) How many sixes would you expect to get if a **fair** six-sided dice was rolled 300 times? [2 marks]

Answer _____

This is the end of the question paper

For Examiner's use only	
Question Number	Marks
1	
2	
3	
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15	
16	

Total Marks	
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Examiner Number

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