Write your name here

Surname	Other names

Pearson
Edexcel GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Methods in Mathematics

Unit 1: Methods 1

For Approved Pilot Centres ONLY

Foundation Tier

Monday 11 November 2013 – Morning
Time: 1 hour 45 minutes

Paper Reference
5MM1F/01

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators must not be used.**

Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P43605A

6/5/5/5/

P 4 3 6 0 5 A 0 1 3 2

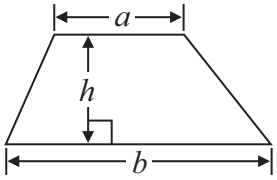
PEARSON

GCSE Mathematics 2MM01

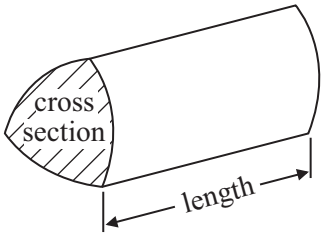
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

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



Volume of prism = area of cross section × length



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You must NOT use a calculator.

1 (a) Write the number 6050 in words.

.....

(1)

(b) Write 15.83 correct to the nearest whole number.

.....

(1)

(c) Write 5748 correct to the nearest hundred.

.....

(1)

(d) What is the value of the figure **8** in the number 4185?

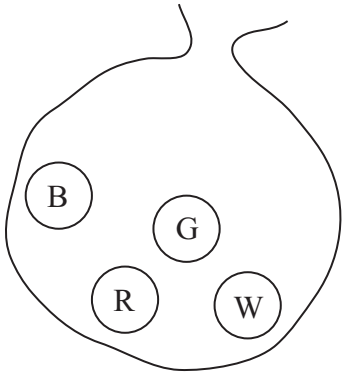
.....

(1)

(Total for Question 1 is 4 marks)

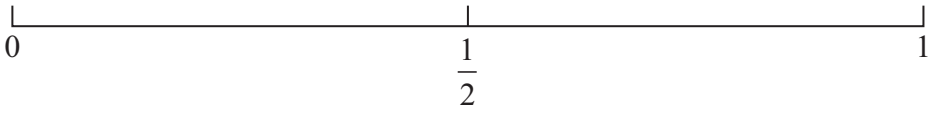
2 There are four beads in a bag.

One bead is blue, one bead is green, one bead is red and one bead is white.



Robert takes at random a bead from the bag.

(a) On the probability scale, mark with a cross (×) the probability that Robert takes a blue bead.



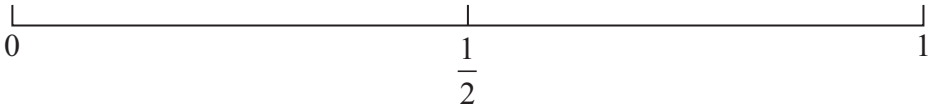
(1)

(b) Circle the word that best describes the likelihood that Robert takes a yellow bead.

impossible unlikely even likely certain

(1)

(c) On the probability scale, mark with a cross (×) the probability that Robert takes a red bead or a white bead.



(1)

(Total for Question 2 is 3 marks)

3 (a) Write these numbers in order of size.
Start with the smallest number.

85 107 111 93 102

.....

(1)

(b) Write these numbers in order of size.
Start with the smallest number.

−6 2 7 −1 4

.....

(1)

(c) Work out the number that is halfway between

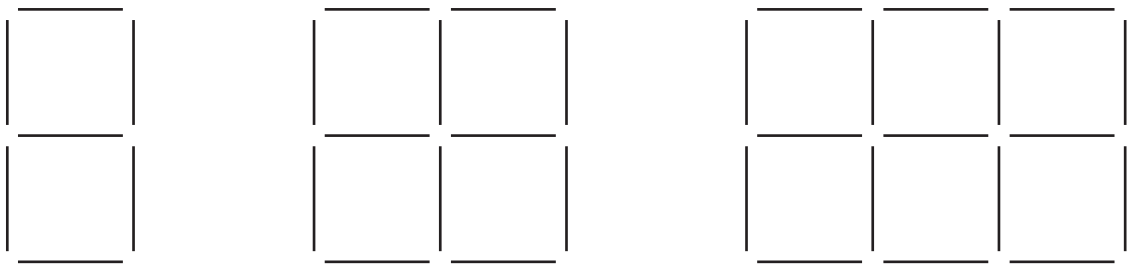
$\frac{4}{5}$ and 1.1

.....

(2)

(Total for Question 3 is 4 marks)

4 Here are some patterns made from sticks.



Pattern number 1 Pattern number 2 Pattern number 3

(a) In the space below, draw Pattern number 4

(1)

(b) Complete the table.

Pattern number	1	2	3	4	5
Number of sticks	7	12	17		

(1)

Hattie says

"The number of sticks in Pattern number 6 is twice the number of sticks in Pattern number 3."

(c) Is Hattie right?
You must explain your answer.

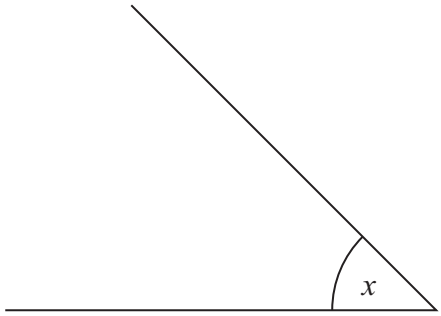
.....

.....

(1)

(Total for Question 4 is 3 marks)

5



(a) (i) What type of angle is the angle marked x?

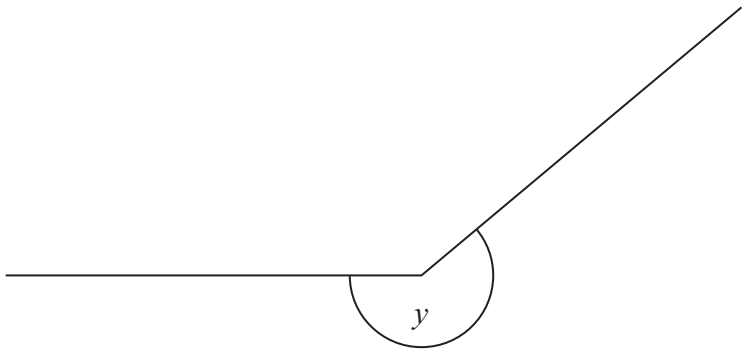
.....

(ii) Estimate the size of the angle marked x.

..... °

(2)

(b)



Sunita says that $y = 140°$

Is Sunita right?
Explain your answer.

.....

.....

(1)

(Total for Question 5 is 3 marks)

6 Tom is x years old.

Lily is 5 years younger than Tom.

(a) Write down an expression, in terms of x, for Lily's age.

.....

(1)

Richard is twice as old as Tom.

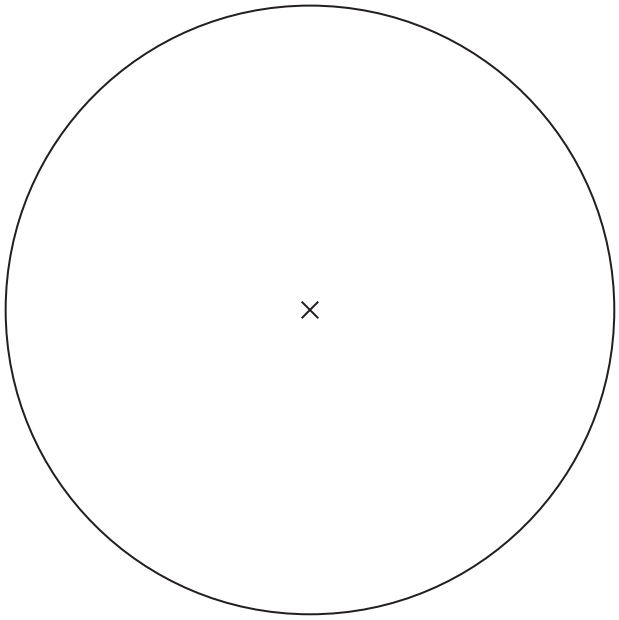
(b) Write down an expression, in terms of x, for Richard's age.

.....

(1)

(Total for Question 6 is 2 marks)

7 Here is a circle.



The circle has a radius of 4 cm.

(a) Write down the length of the diameter of this circle.

..... cm

(1)

(b) On the diagram, draw a tangent to the circle.

(1)

(Total for Question 7 is 2 marks)

8 $r + s + t = 100$

$r = 15$
$s = 25$

Work out the value of t.

.....

(Total for Question 8 is 2 marks)

9 Here are ten letters.

A B B C C C D D D D

Jason takes at random one of the ten letters.

(a) Which letter is Jason most likely to take?

.....

(1)

(b) Write down the probability Jason takes the letter A.

.....

(1)

(Total for Question 9 is 2 marks)

***10**

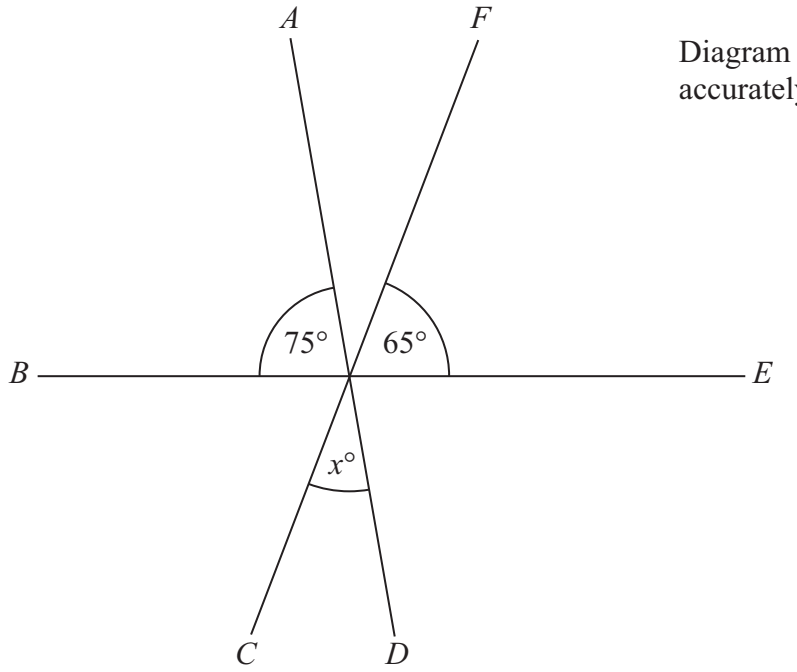


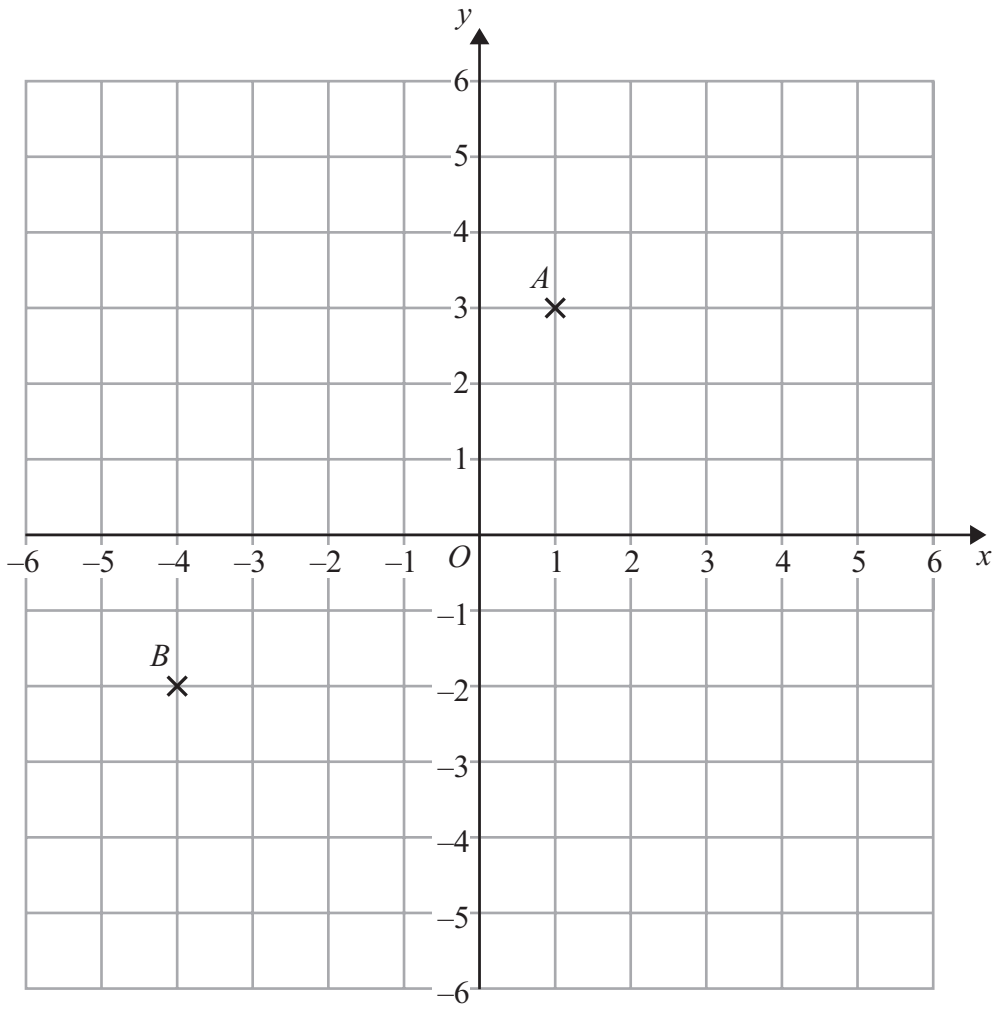
Diagram **NOT** accurately drawn

AD, *BE* and *FC* are straight lines.

Work out the value of *x*.
Give reasons for your answer.

(Total for Question 10 is 4 marks)

11



(a) (i) Write down the coordinates of the point A.

(.....,.....)

(ii) Write down the coordinates of the point B.

(.....,.....)

(2)

(b) On the grid, plot the point $(-3, 0)$.
Label the point C.

(1)

D is another point on the grid.
The coordinates of the midpoint of AD are $(1, -1)$.

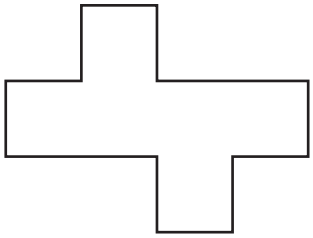
(c) Find the coordinates of the point D.

(.....,.....)

(2)

(Total for Question 11 is 5 marks)

12 Here is a shape.

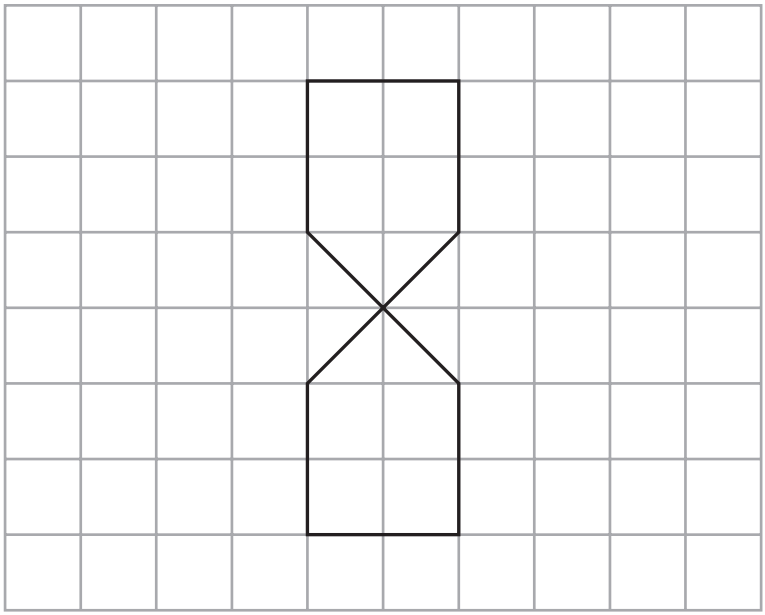


(a) Write down the order of rotational symmetry of the shape.

.....

(1)

Here is part of a different shape.



(b) Complete this shape so that it has rotational symmetry of order 4

(1)

(Total for Question 12 is 2 marks)

13 Here is a list of numbers.

$$-2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$$

From the list,

(a) write down **two** different numbers that add together to give 0

.....

(1)

(b) write down **two** different numbers that multiply together to give 0

.....

(1)

(c) write a different number in each box to make the statement true.

$$\square \times \square \times \square = -12$$

(2)

(Total for Question 13 is 4 marks)

14 The probability that Emma will win a prize is 0.2
The probability that Sheila will win a prize is 0.05

(a) Who is more likely to win a prize, Emma or Sheila?
Give a reason for your answer.

.....

.....

(1)

(b) Work out the probability that Emma does **not** win a prize.

.....

(2)

(Total for Question 14 is 3 marks)

15 (a) Simplify $3p - p$

.....

(1)

(b) Simplify $t \times t$

.....

(1)

(c) Simplify $2x + 3y - x + y$

.....

(2)

(Total for Question 15 is 4 marks)

16 (a) Write down a factor of 30

.....

(1)

(b) Write down a multiple of 6

.....

(1)

(c) Write down a square number.

.....

(1)

*(d) Here is a statement.

"If you multiply any prime number by 2 and then subtract 1 you always get another prime number."

Is this statement right?

Give a reason for your answer.

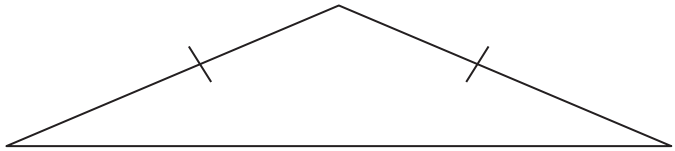
.....

.....

(2)

(Total for Question 16 is 5 marks)

17 Here is a triangle.

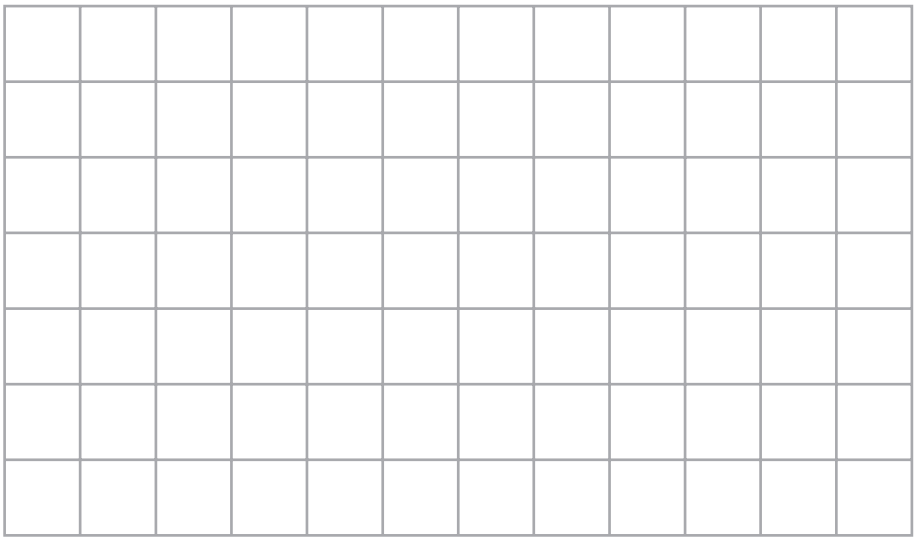


(a) Write down the mathematical name for this triangle.

.....

(1)

(b) On the grid, draw a four-sided shape that has exactly one pair of parallel sides.



(1)

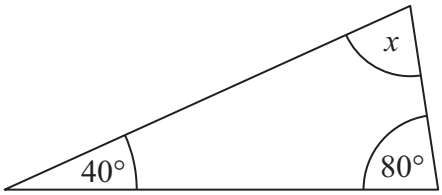


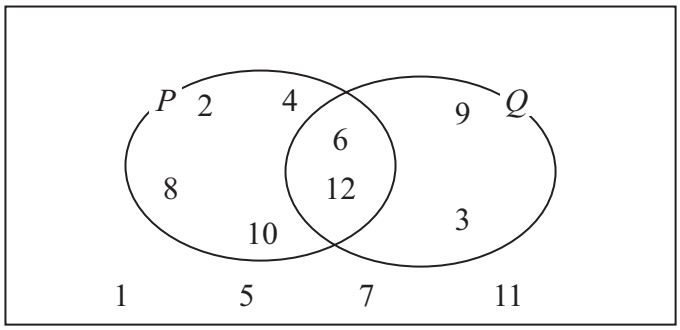
Diagram **NOT** accurately drawn

*(c) Work out the size of the angle marked x.
Give a reason for your answer.

(3)

(Total for Question 17 is 5 marks)

18 Here is a Venn diagram.



(a) Write down the numbers that are in set Q.

.....

(2)

(b) Write down the numbers that are in set P but are **not** in set Q.

.....

(1)

(c) Write down the numbers that are in set P **and** also in set Q.

.....

(1)

A student chooses at random a number from the Venn diagram.

(d) Write down the probability that this number is **not** in set Q.

.....

(2)

(Total for Question 18 is 6 marks)

19 (a) Write $\frac{7}{5}$ as a mixed number.

.....

(1)

(b) Write $\frac{15}{55}$ as a fraction in its simplest form.

.....

(1)

*(c) Here are two fractions.

$$\frac{3}{8} \qquad \frac{1}{6}$$

Which of these fractions has a value closest to $\frac{1}{4}$?
You must show clearly how you get your answer.

(4)

(Total for Question 19 is 6 marks)

20 (a) Solve $x - 7 = 3$

.....

(1)

(b) Solve $2p + 7 = 23$

.....

(2)

(Total for Question 20 is 3 marks)

21 Jo throws a biased dice 100 times.
Each time she records the number it shows.

Here are her results.

Number shown	1	2	3	4	5	6
Frequency	18	12	25	13	21	11

Jo throws the dice one more time.

(a) Estimate the probability that the dice will land showing

(i) the number 3

.....

(ii) an even number

.....

(3)

Luke and Martha have a coin.
They want to find an estimate for the probability that this coin will land on heads.

Luke throws the coin 10 times and records his results.
Martha throws the coin 100 times and records her results.

(b) Who is likely to get the better estimate, Luke or Martha?
Give a reason for your answer.

.....

.....

(1)

(Total for Question 21 is 4 marks)

22 Work out 365×28

.....

(Total for Question 22 is 3 marks)

23 Here is a square.

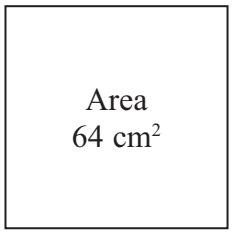


Diagram **NOT** accurately drawn

The area of the square is 64 cm^2.

(a) Work out the length of one side of the square.

..... cm

(1)

Here is a rectangle.

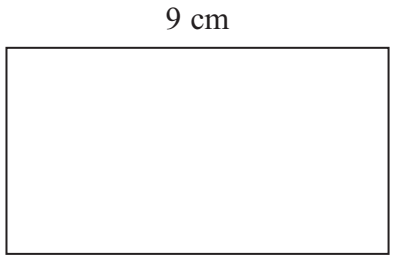


Diagram **NOT** accurately drawn

The length of the rectangle is 9 cm.
The perimeter of the rectangle is 31 cm.

(b) Work out the width of the rectangle.

.....

(4)

(Total for Question 23 is 5 marks)

24

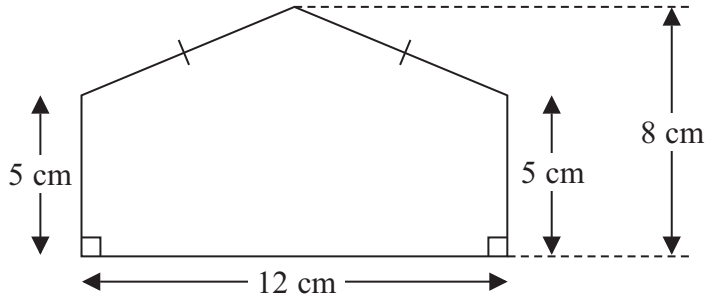


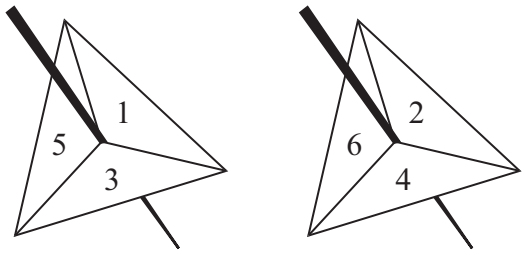
Diagram **NOT** accurately drawn

Work out the area of the shape.

..... cm^2

(Total for Question 24 is 4 marks)

25 Jack has two fair 3-sided spinners.



Jack spins each spinner once.
Each spinner lands on a number.

Jack multiplies these two numbers together to get his score.

(i) Work out the probability that Jack's score is 6

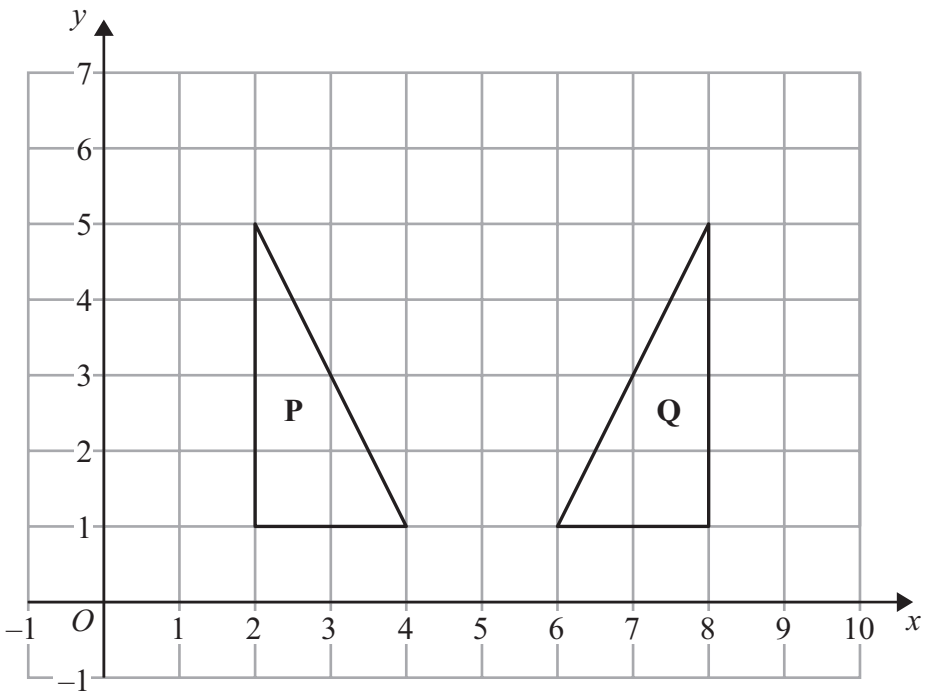
.....

(ii) Work out the probability that Jack's score is at least 10

.....

(Total for Question 25 is 5 marks)

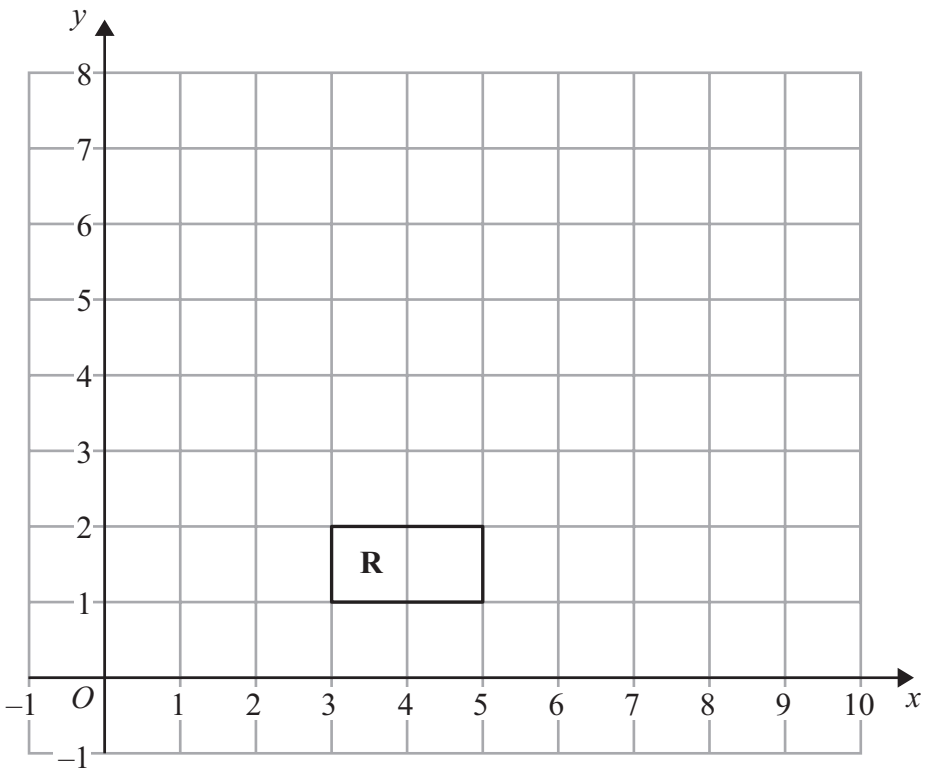
26



(a) Describe fully the single transformation that maps triangle **P** onto triangle **Q**.

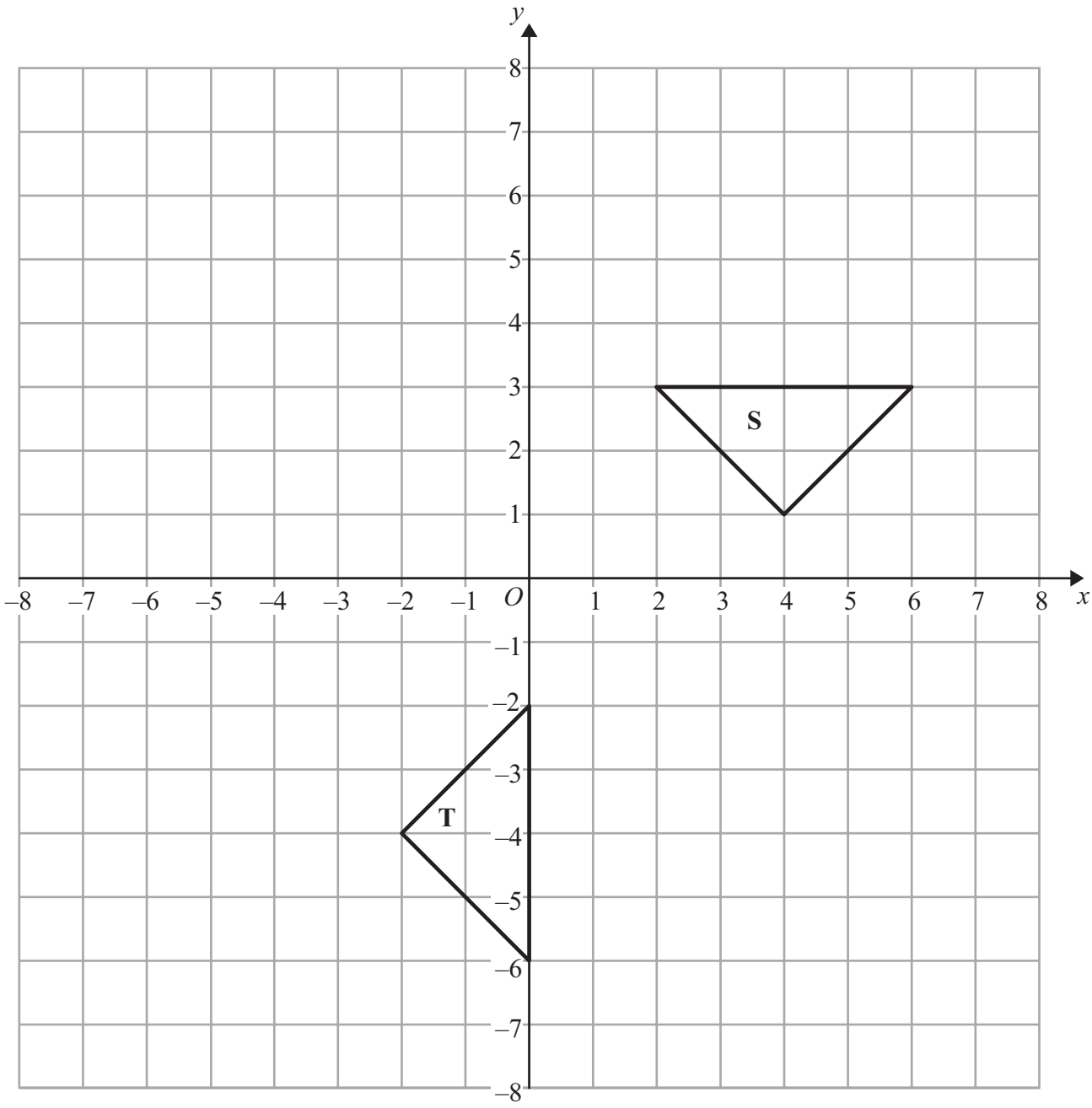
.....

(2)



(b) Enlarge rectangle **R**, with scale factor 3 and centre (4, 0).

(2)



Shape **S** can be transformed to shape **T** by the translation $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ followed by a rotation.

(c) Describe the rotation.

.....

.....

(3)

(Total for Question 26 is 7 marks)

TOTAL FOR PAPER IS 100 MARKS

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