Edexcel GCSE

Centre Number

Candidate Number

Methods in Mathematics
Unit 1: Methods 1
For Approved Pilot Centres ONLY
Foundation Tier

Monday 12 November 2012 – 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 ▶

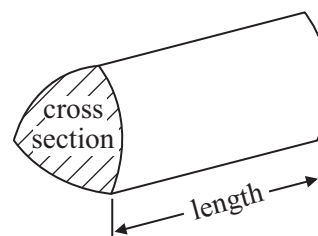**PEARSON**

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.

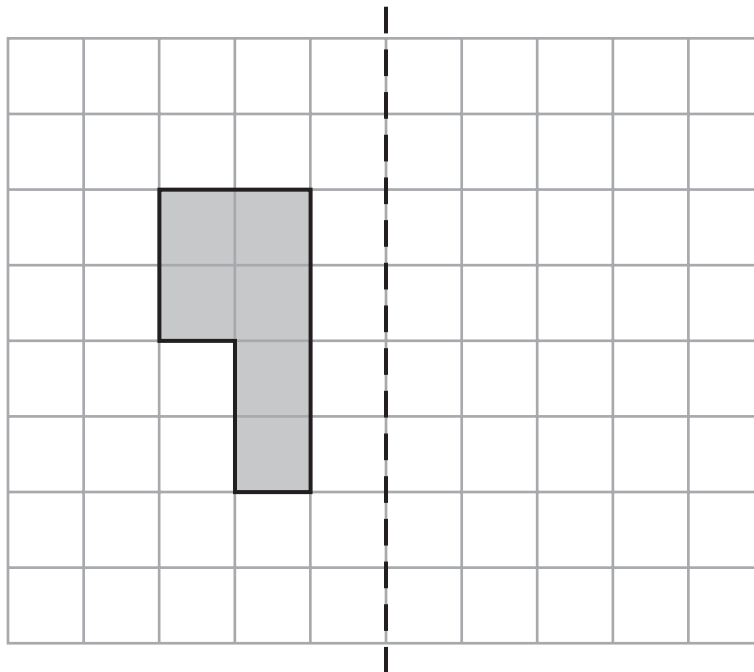1 (a) Write the number **four thousand, seven hundred and thirty six** in figures.

....
(1)

   (b) Write the number 23 584 correct to the nearest hundred.

....
(1)

(Total for Question 1 is 2 marks)

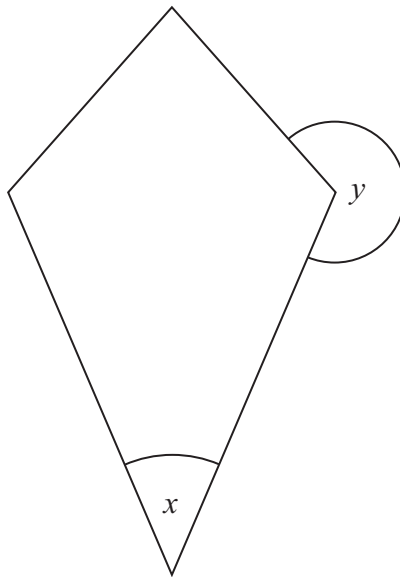2 The shaded shape is drawn on a centimetre square grid.

Mirror line

Reflect the shaded shape in the mirror line.

(Total for Question 2 is 2 marks)

3 The diagram shows a quadrilateral.

(a) What is the mathematical name for this quadrilateral?

....

(1)

(b) Write down the type of angle shown by the letter

(i) x

....

(ii) y

....

(2)

(Total for Question 3 is 3 marks)

4 Write the fraction $\dfrac{18}{24}$ in its simplest form.

....

(Total for Question 4 is 2 marks)

5 Here is a spinner.
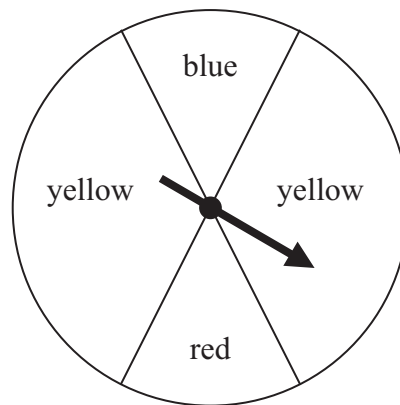
The arrow on the spinner can stop on blue or on yellow or on red.
Amy is going to spin the arrow once.

| impossible | unlikely | even | likely | certain |

Choose a word from the box to best describe the probability

(a) that the arrow will stop on yellow,

....
(1)

(b) that the arrow will stop on red,

....
(1)

(c) that the arrow will stop on pink.

....
(1)

(Total for Question 5 is 3 marks)

6 Here is a list of 7 numbers.

$$7 \qquad 8 \qquad 9 \qquad 16 \qquad 17 \qquad 18 \qquad 24$$

From the list,

(a) write down a square number

....

(1)

(b) write down a multiple of 6

....

(1)

(c) write down a cube number.

....

(1)

(Total for Question 6 is 3 marks)

7 (a) Work out $\quad 3 \times 4 - 2$

....

(1)

(b) Work out $\quad 40 \div (14 - 6)$

....

(1)

(c) Work out $\quad 15 + 10 \div 5$

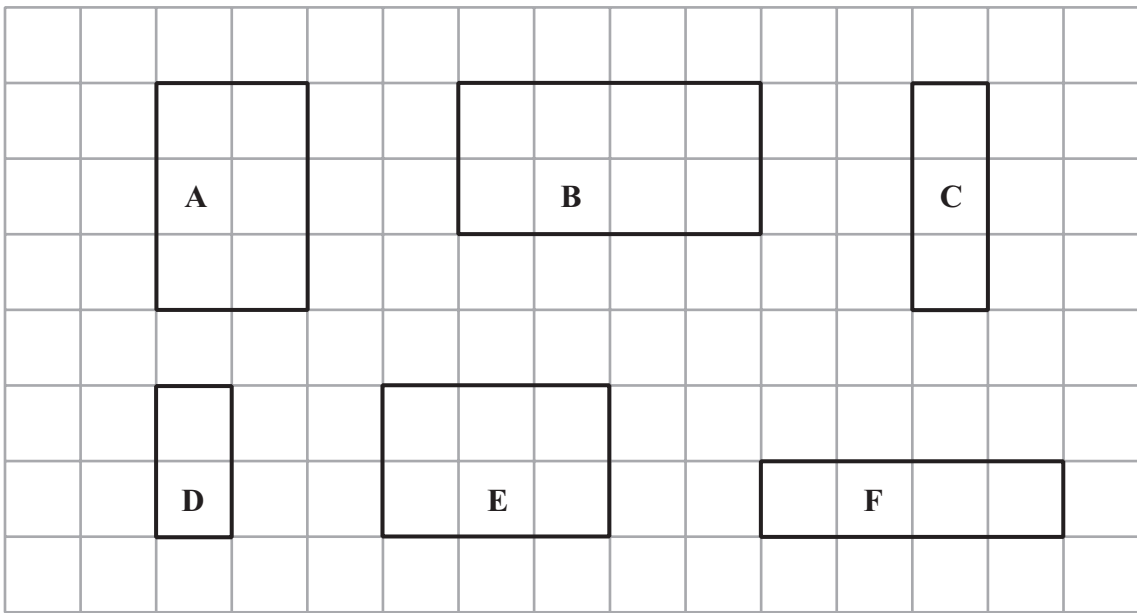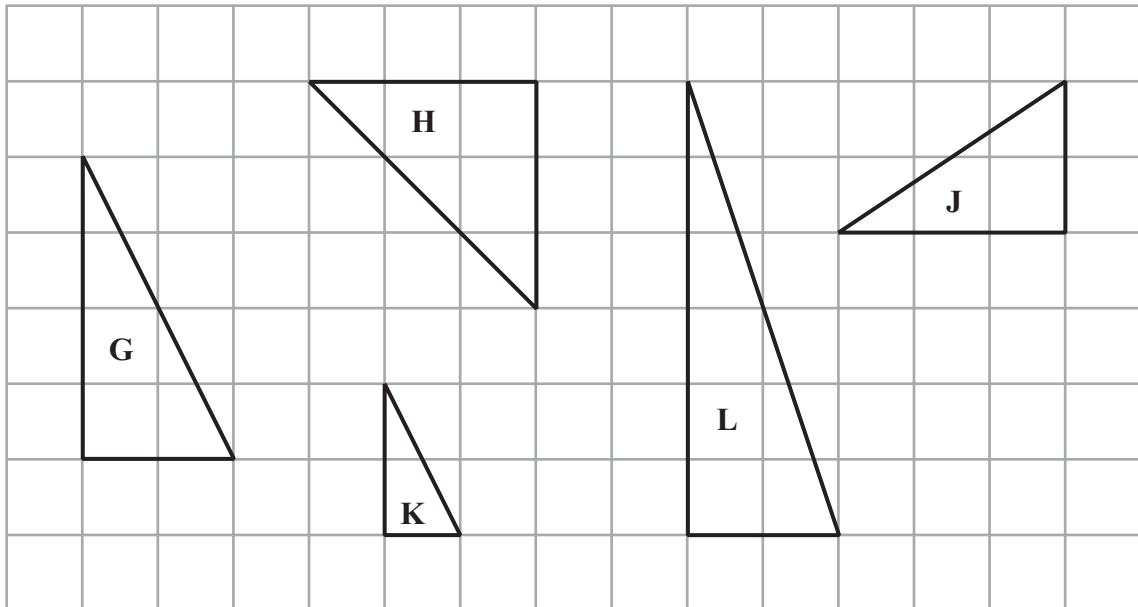.......................................

(1)

(Total for Question 7 is 3 marks)

8 Here are 6 rectangles drawn on a square grid.

(a) Write down the letters of the **two** congruent rectangles.

.... and ....

(1)

Here are 5 triangles drawn on a square grid.

(b) Write down the letters of the **two** similar triangles.

.... and ....

(1)

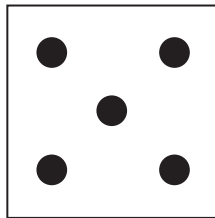**(Total for Question 8 is 2 marks)**

Turn over ▶

9 (a) Draw all the lines of symmetry on this diagram.
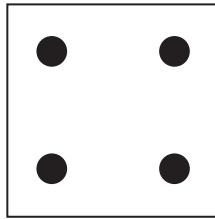
(2)

(b) This shape has rotational symmetry.

Write down the order of rotational symmetry.

....

(1)

(Total for Question 9 is 3 marks)

10 (a) Work out 4×300

....
(1)

(b) Work out $64 \div 4$

....
(1)

(c) Work out $-8 + 10$

....
(1)

(d) Work out 561×34

....
(3)

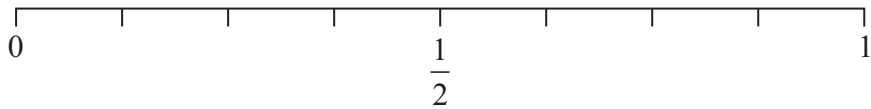**(Total for Question 10 is 6 marks)**

11 There are 8 beads in a bag.
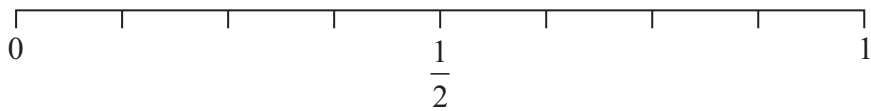
4 beads are red.
1 bead is white.
3 beads are blue.

Jane takes at random a bead from the bag.

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

$$0 \quad\quad\quad\quad \frac{1}{2} \quad\quad\quad\quad 1$$

(1)

(b) On the probability scale, mark with a cross (×) the probability that
Jane takes a green bead.

$$0 \quad\quad\quad\quad \frac{1}{2} \quad\quad\quad\quad 1$$

(1)

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

$$0 \quad\quad\quad\quad \frac{1}{2} \quad\quad\quad\quad 1$$

(1)
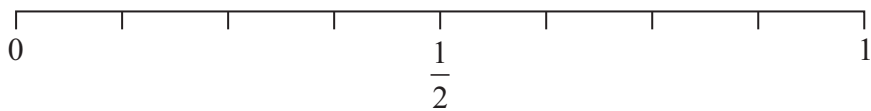
(Total for Question 11 is 3 marks)

12 Here are four cards.
There is a number on each card.

$$\boxed{6} \quad \boxed{4} \quad \boxed{3} \quad \boxed{7}$$
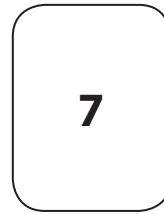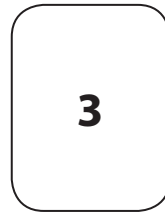
(a) Use each of the four cards once to make the **smallest** 4 digit number.

....

(1)

(b) Use each of the four cards once to make the **largest** 4 digit **even** number.

....

(1)

(c) Use two cards to make a fraction equivalent to $\dfrac{2}{3}$

....

(1)

(d) Use two cards to make a fraction greater than $\dfrac{1}{2}$ **and** less than 1

....

(1)

(Total for Question 12 is 4 marks)

13 Pippa rolls an ordinary fair dice once.

(a) Write down the probability that she gets

   (i) the number 3

....

   (ii) an even number

....

   (iii) a number greater than 4

....

(3)

Pete rolls an ordinary fair dice once and throws a fair coin once.

(b) (i) Write down all the possible outcomes.

....

....

....

   (ii) Write down the probability that Pete gets a 6 and a Head.

....

(3)

(Total for Question 13 is 6 marks)

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

    6   –3   17   –5   2

    ....

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

    0.67   0.078   0.6   0.75   0.705

    ....

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

$$\frac{1}{2} \qquad \frac{3}{10} \qquad \frac{3}{4} \qquad \frac{2}{5}$$

    ....

(Total for Question 14 is 4 marks)

15 (a) Simplify $b + b + b + b$

....

(1)

(b) Simplify $3 \times c \times d$

....

(1)

(c) Simplify $4h - 2r + 3h + 7r$

....

(2)

(Total for Question 15 is 4 marks)

16 (a) Work out $\dfrac{3}{8} + \dfrac{2}{8}$

....

(1)

(b) Work out $\dfrac{7}{10} - \dfrac{3}{5}$

....

(2)

(c) Work out $\dfrac{5}{8} \div \dfrac{3}{4}$

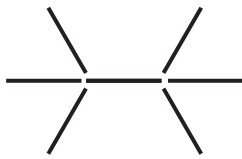...
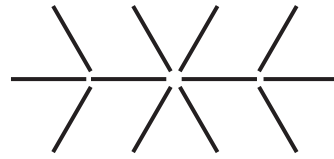
(2)
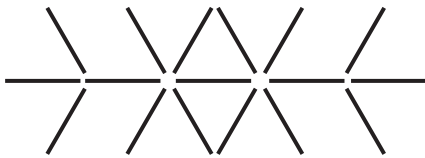
(Total for Question 16 is 5 marks)

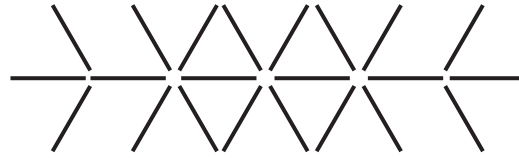**17** Here is a sequence of patterns made from sticks.

Pattern number 1

Pattern number 2

Pattern number 3

Pattern number 4

(a) Complete the table to show the number of sticks in each pattern.

Pattern number	1	2	3	4	5
Number of sticks	7	12	17	22	....

(1)

(b) Find the number of sticks in Pattern number 8

....

(1)

(c) Find an expression in terms of *n* for the number of sticks in Pattern number *n*.

....

(2)

Ali has 60 sticks.
She wants to use as many sticks as possible to make a Pattern number.

(d) What is the largest Pattern number she can make?

....

(2)

(Total for Question 17 is 6 marks)

18 (a) Solve $x + 4 = 16$

$x = $ ....
(1)

(b) Solve $5b = 30$

$b = $ ....
(1)

(c) Solve $7y - 5 = 16$

$y = $ ....
(2)

(Total for Question 18 is 4 marks)

19 Which is the larger, 2^6 or 6^2?

You must show your working.

....

(Total for Question 19 is 3 marks)

20 The Venn diagram shows the numbers from 1 to 15
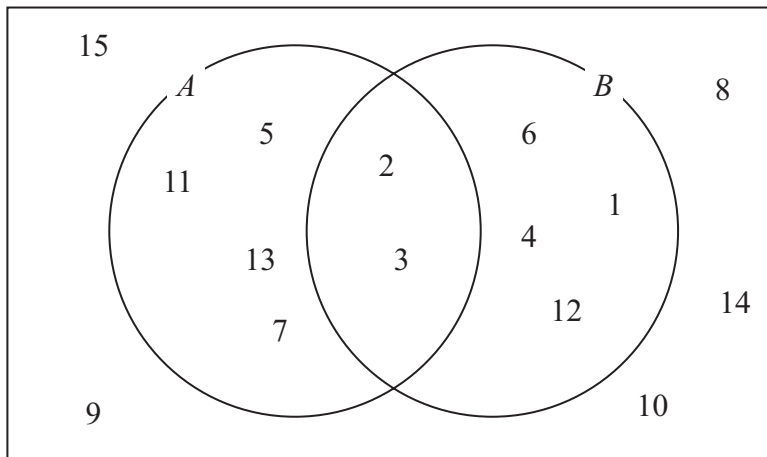
(a) Use **one** word to complete this sentence.

All the numbers in set B are .... of 12

(1)

(b) Write down the numbers that are in set A **and** also in set B.

....

(1)

(c) Find P(A')

....

(2)

(Total for Question 20 is 4 marks)

21
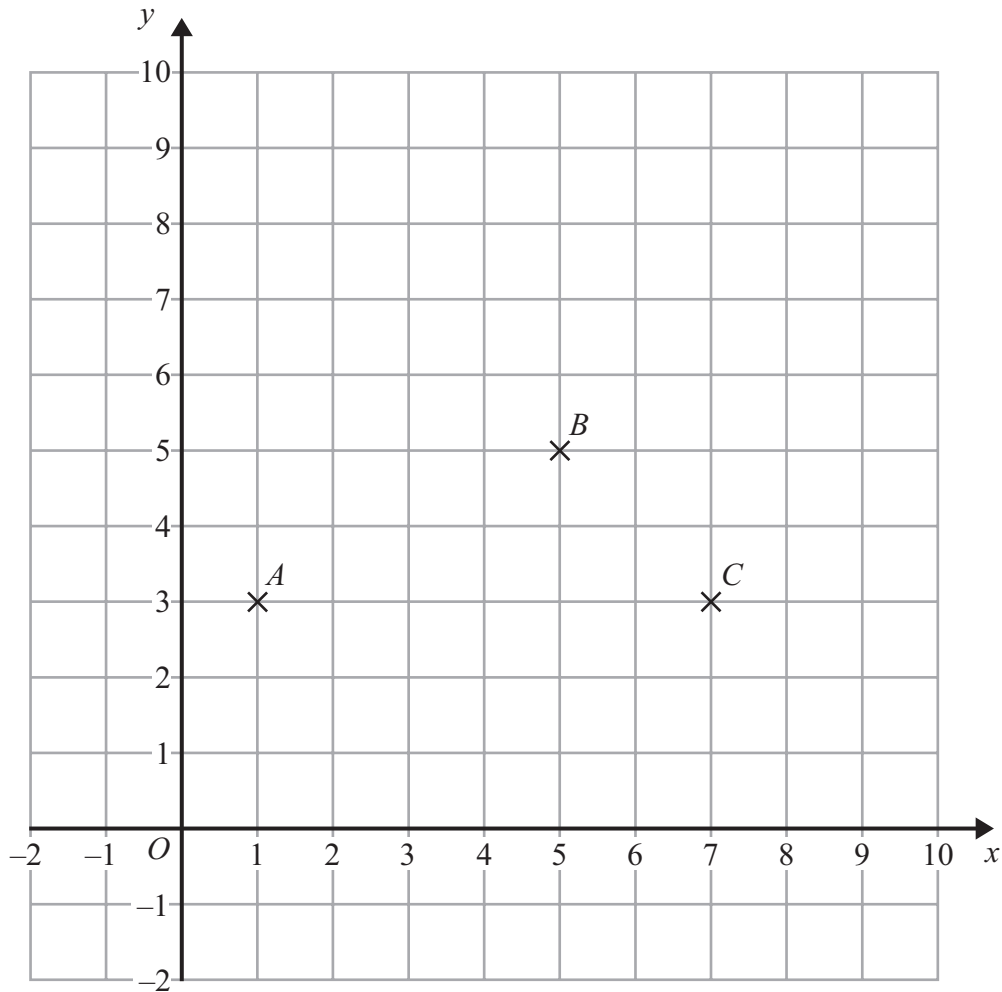
(a) Write down the coordinates of point *C*.

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

(1)

(b) Find the coordinates of point *D* so that *ABCD* is a parallelogram.

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

(1)

E is another point on the grid.
The midpoint of *AE* has coordinates (2, 6)

(c) Find the coordinates of point *E*.

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

(2)

(Total for Question 21 is 4 marks)

22 Here is a rectangle.

Diagram **NOT** accurately drawn

4 cm

The rectangle has a width of 4 cm.
It has a perimeter of 28 cm.

(a) Work out the area of the rectangle.

.... cm^2

(3)

A square has an area of 81 cm^2.

(b) Work out the perimeter of the square.

.... cm

(3)

(Total for Question 22 is 6 marks)

23 Ramesh throws a biased coin.
The probability that the coin will land on a Head is 0.37

(a) Write down the probability that the coin will land on a Tail.

....

(1)

Ramesh is going to throw the coin 500 times.

(b) Work out an estimate for the number of times that the coin will land on a Head.

....

(2)

(Total for Question 23 is 3 marks)

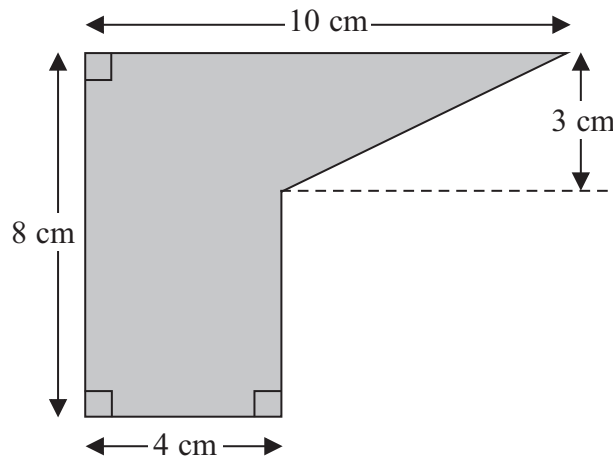***24** Work out the area of the shaded shape.

Diagram **NOT**
accurately drawn

(Total for Question 24 is 4 marks)

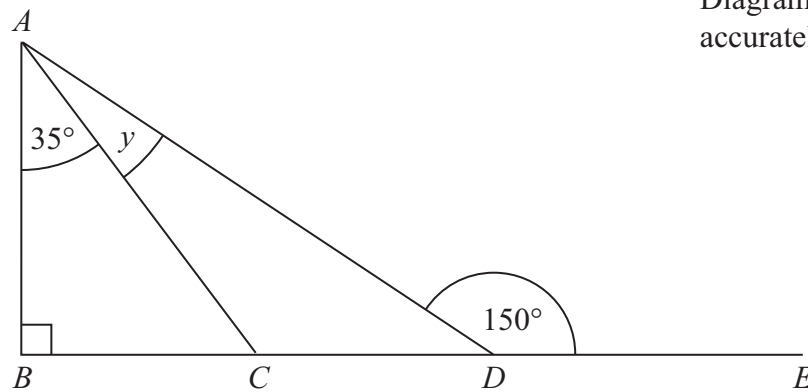**25** On the grid, draw the graph of $y = 2x + 3$ for values of x from -2 to 2

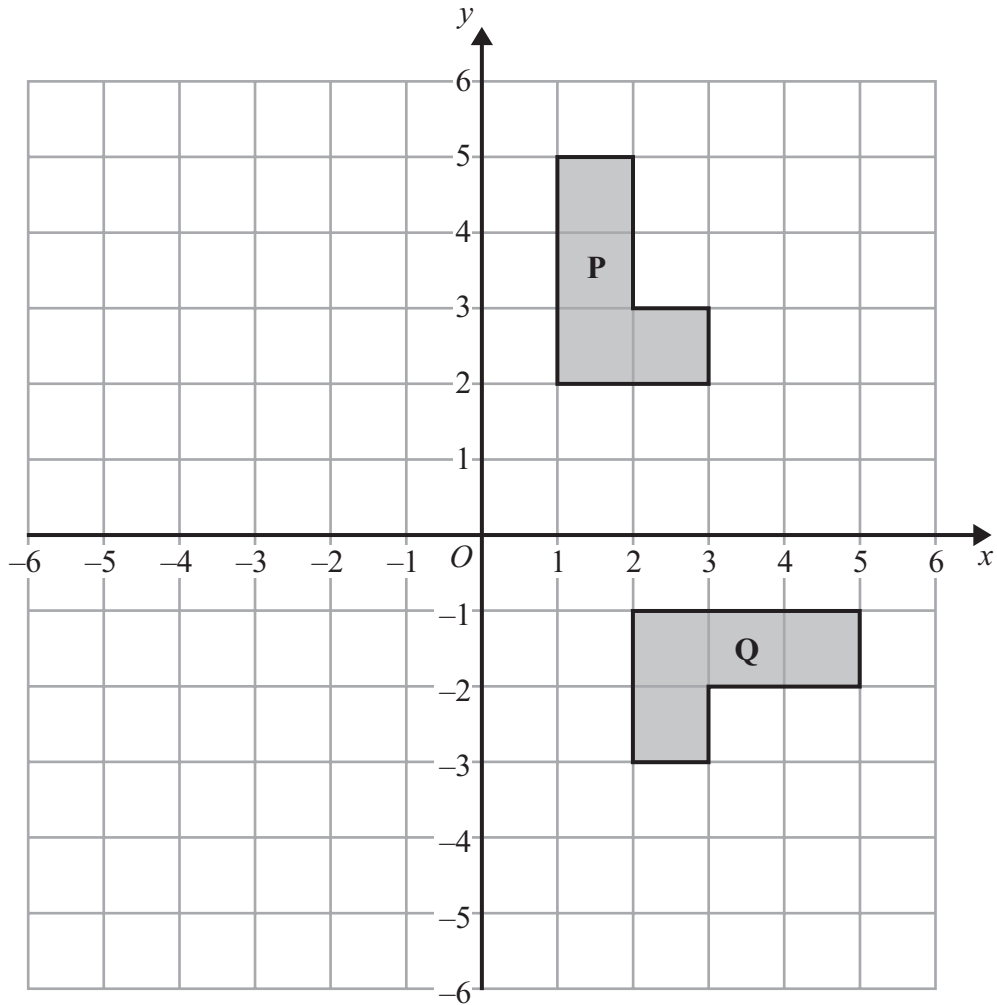**(Total for Question 25 is 4 marks)**

Diagram **NOT**
accurately drawn

ABC and *ABD* are right-angled triangles.
BCDE is a straight line.

Angle *BAC* = 35°
Angle *ADE* = 150°

Work out the size of angle *y*.
Give reasons for your answer.

(Total for Question 26 is 4 marks)

27

Describe fully the **single** transformation that maps shape **P** onto shape **Q**.

....

....

(Total for Question 27 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

BLANK PAGE