

## 1MA1 Foundation themed papers: Points Lines and Curves

|   |   |
|---|---|
| Write your name here  |   |
| Surname   | Other names   |
| Centre Number   | Candidate Number  |
| <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>  | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| Pearson Edexcel<br>Level 1/Level 2 GCSE (9–1)   |   |
| <b>Mathematics</b><br><b>Points, Lines and Curves</b>   |   |
|   | Paper Reference<br><b>1MA1</b>  |
| <b>You must have:</b> Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. 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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.

### Information

- The total mark for this paper is **58**. There are **17** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

### 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.

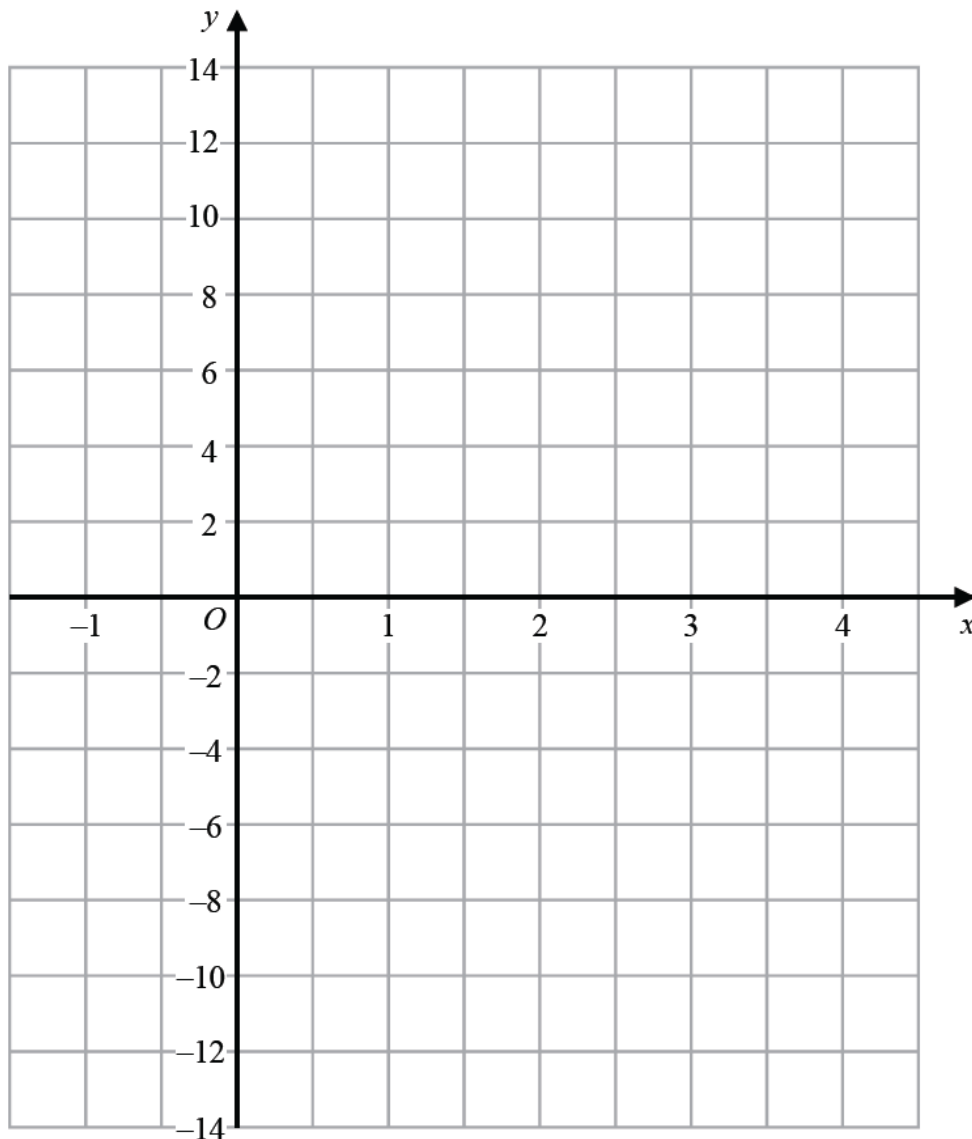
**1MA1 Foundation themed papers: Points Lines and Curves**

1 (a) Complete the table of values for  $y = 4x - 6$

|     |    |   |    |   |   |    |
|-----|----|---|----|---|---|----|
| $x$ | -1 | 0 | 1  | 2 | 3 | 4  |
| $y$ |    |   | -2 |   |   | 10 |

(2)

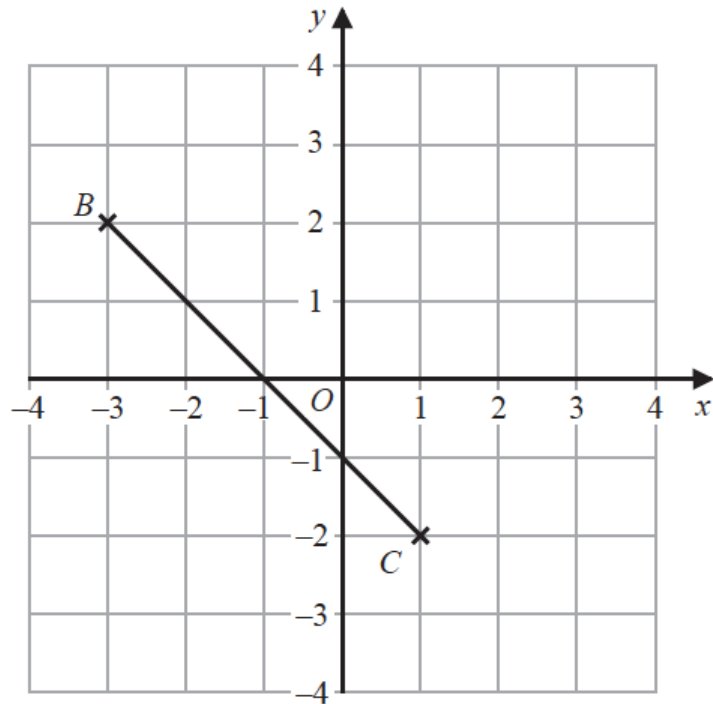
(b) On the grid, draw the graph of  $y = 4x - 6$  for values of  $x$  from -1 to 4



(2)

**(Total for Question 1 is 4 marks)**

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(a) Plot the point with coordinates (3, 2)  
Label this point A.

(1)

(b) Write down the coordinates of the midpoint of  $BC$ .

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

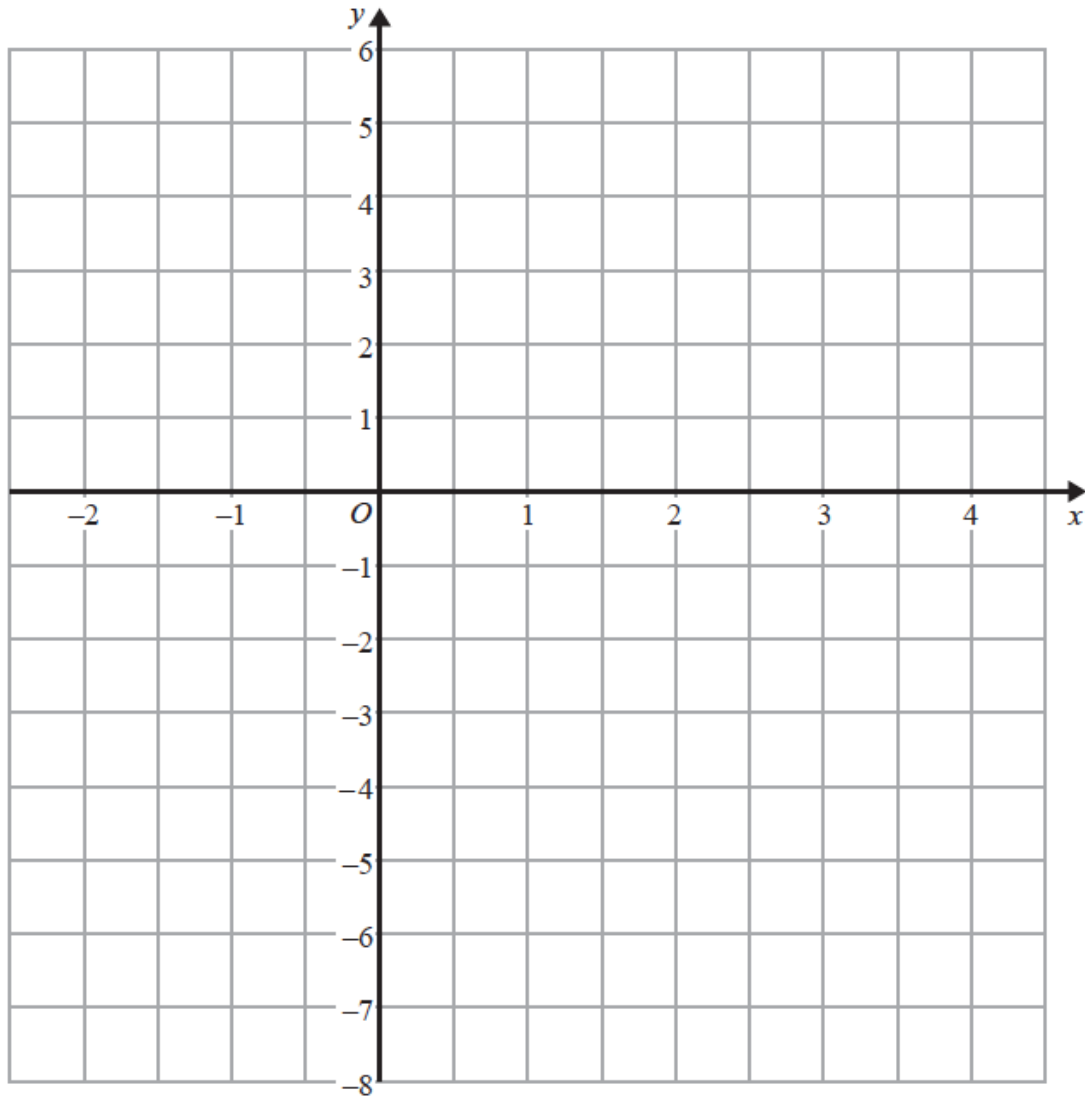
(1)

(Total for Question 2 is 2 marks)

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- 3 On the grid below, draw the graph of  $y = 2x - 3$  for values of  $x$  from  $-2$  to  $4$

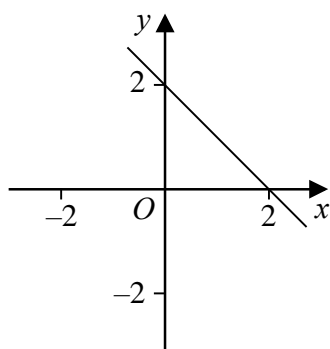


**(Total for Question 3 is 3 marks)**

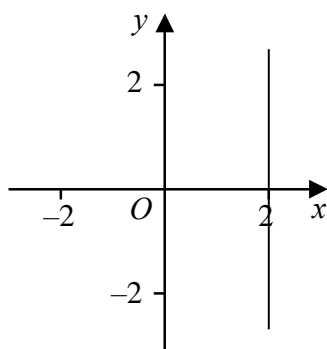
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**1MA1 Foundation themed papers: Points Lines and Curves**

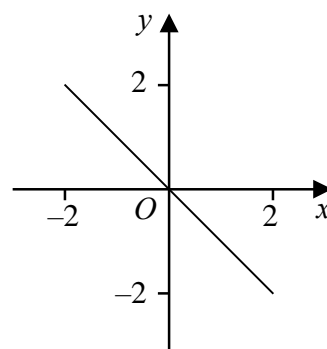
4 Here are six straight line graphs.



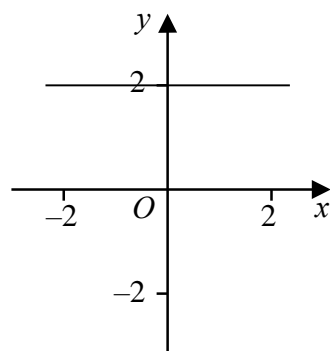
Graph A



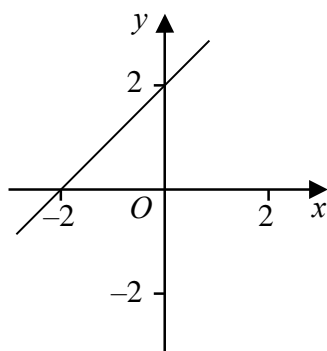
Graph B



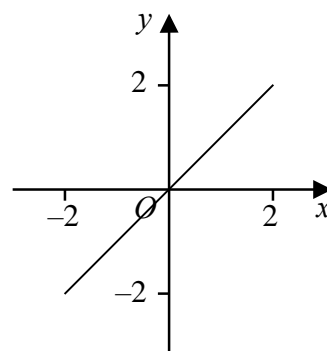
Graph C



Graph D



Graph E



Graph F

Match each equation in the table to the correct graph.  
Write the letter of the graph in the table.

| Equation    | Graph |
|-------------|-------|
| $y = 2$     |       |
| $y = x$     |       |
| $x + y = 2$ |       |

(Total for Question 4 is 2 marks)

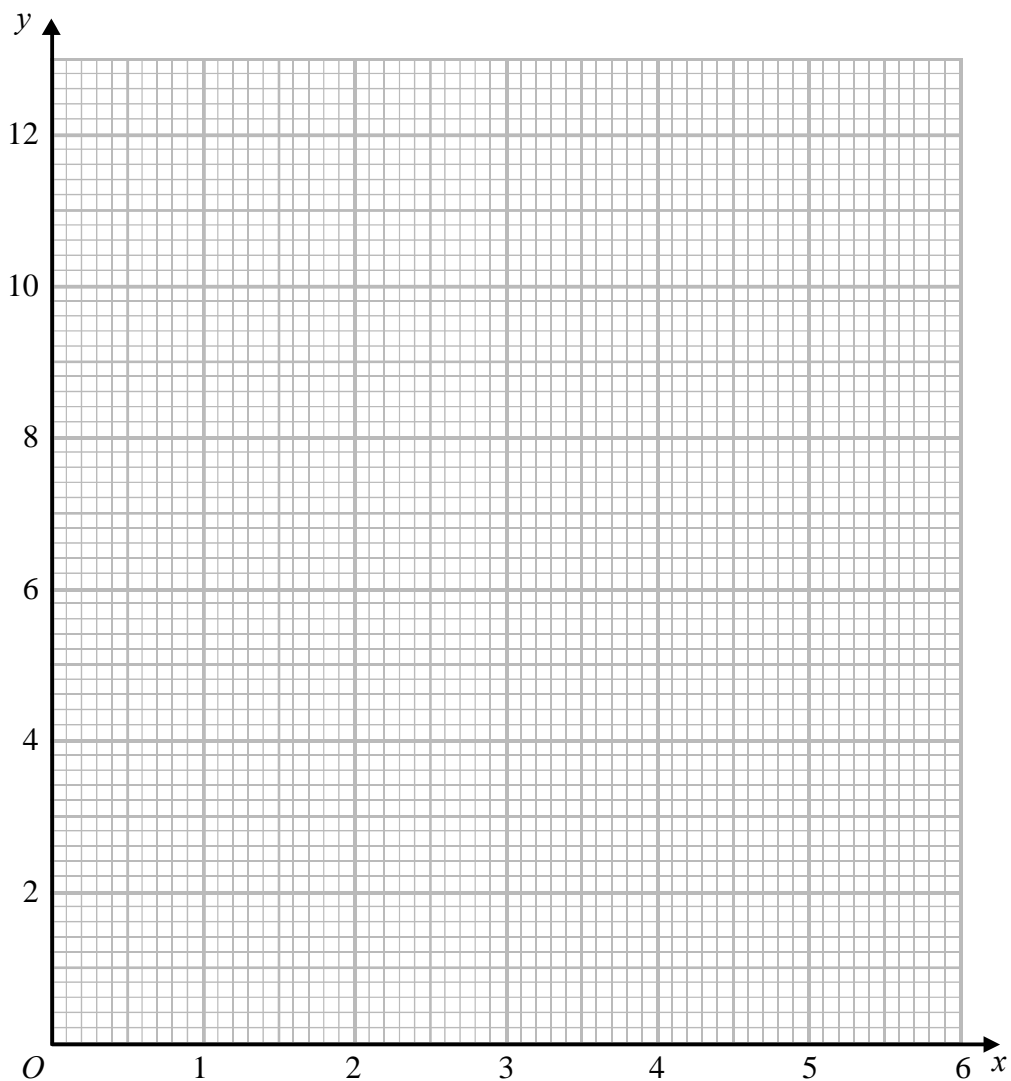
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5 (a) Complete the table of values for  $y = \frac{6}{x}$

|     |     |   |     |   |   |     |   |   |
|-----|-----|---|-----|---|---|-----|---|---|
| $x$ | 0.5 | 1 | 1.5 | 2 | 3 | 4   | 5 | 6 |
| $y$ |     | 6 |     | 3 |   | 1.5 |   |   |

(2)

(b) On the grid below, draw the graph of  $y = \frac{6}{x}$  for values of  $x$  from 0.5 to 6.

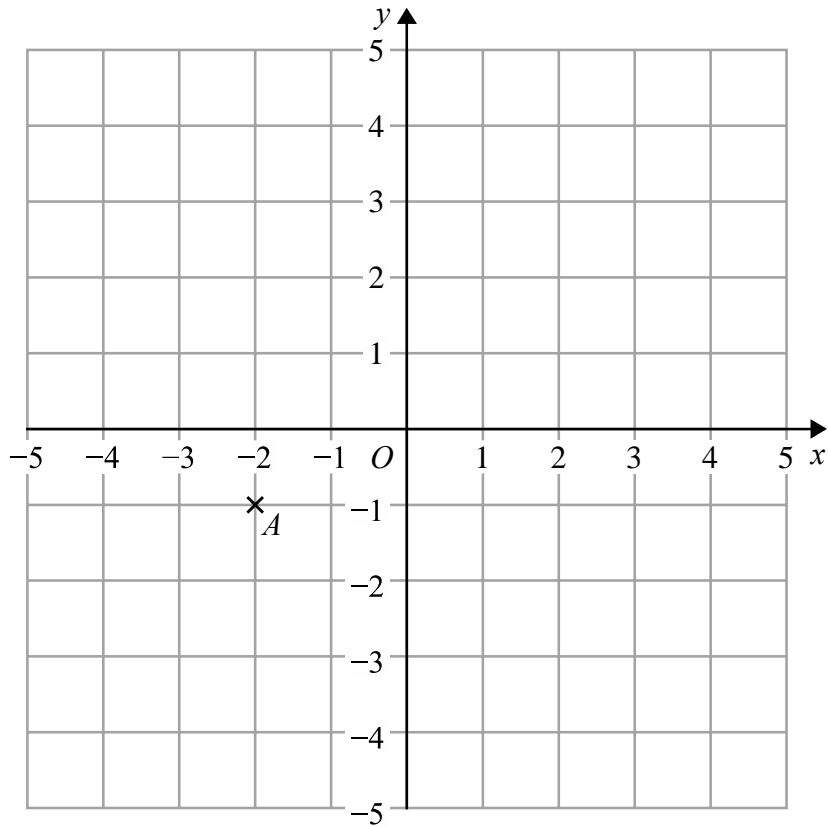


(2)

**(Total for Question 5 is 4 marks)**



6



(a) Write down the coordinates of point A.

( ..... , ..... )  
(1)

(b) On the grid, mark with a cross (×) the point (2, 3)  
Label this point B.

(1)

(c) On the grid, draw the line with equation  $x = -4$

(1)

**(Total for Question 6 is 3 marks)**

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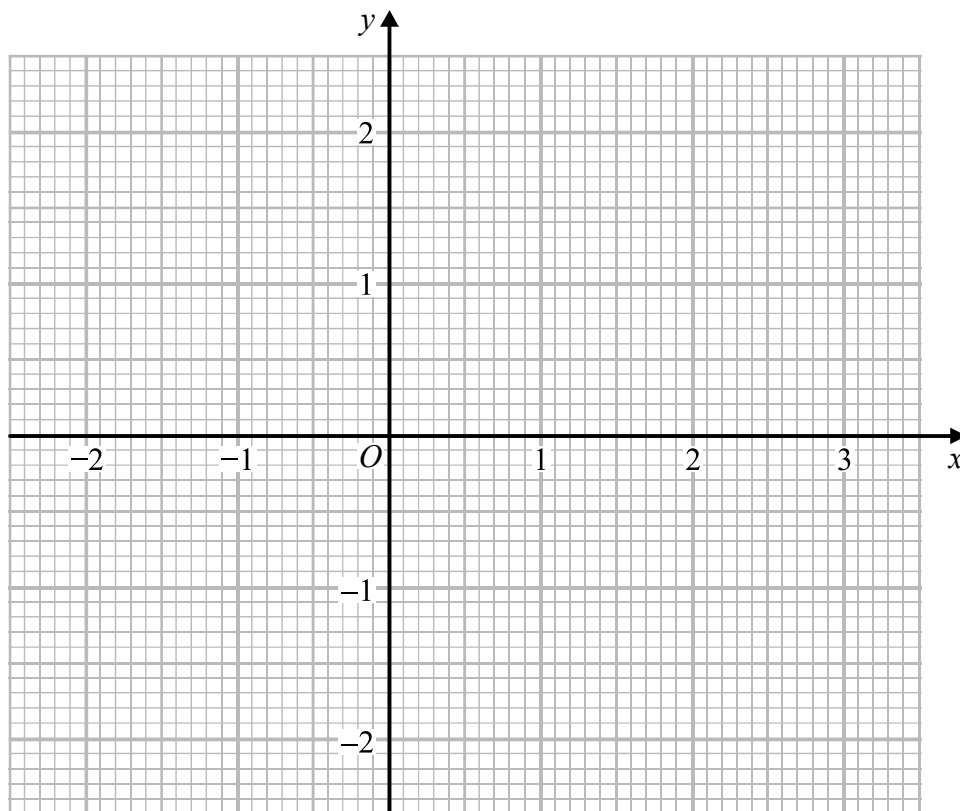
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7 (a) Complete the table of values for  $y = \frac{1}{2}x - 1$

|     |    |    |   |   |   |   |
|-----|----|----|---|---|---|---|
| $x$ | -2 | -1 | 0 | 1 | 2 | 3 |
| $y$ | -2 |    |   |   | 0 |   |

(2)

(b) On the grid, draw the graph of  $y = \frac{1}{2}x - 1$  for the values of  $x$  from -2 to 3



(2)

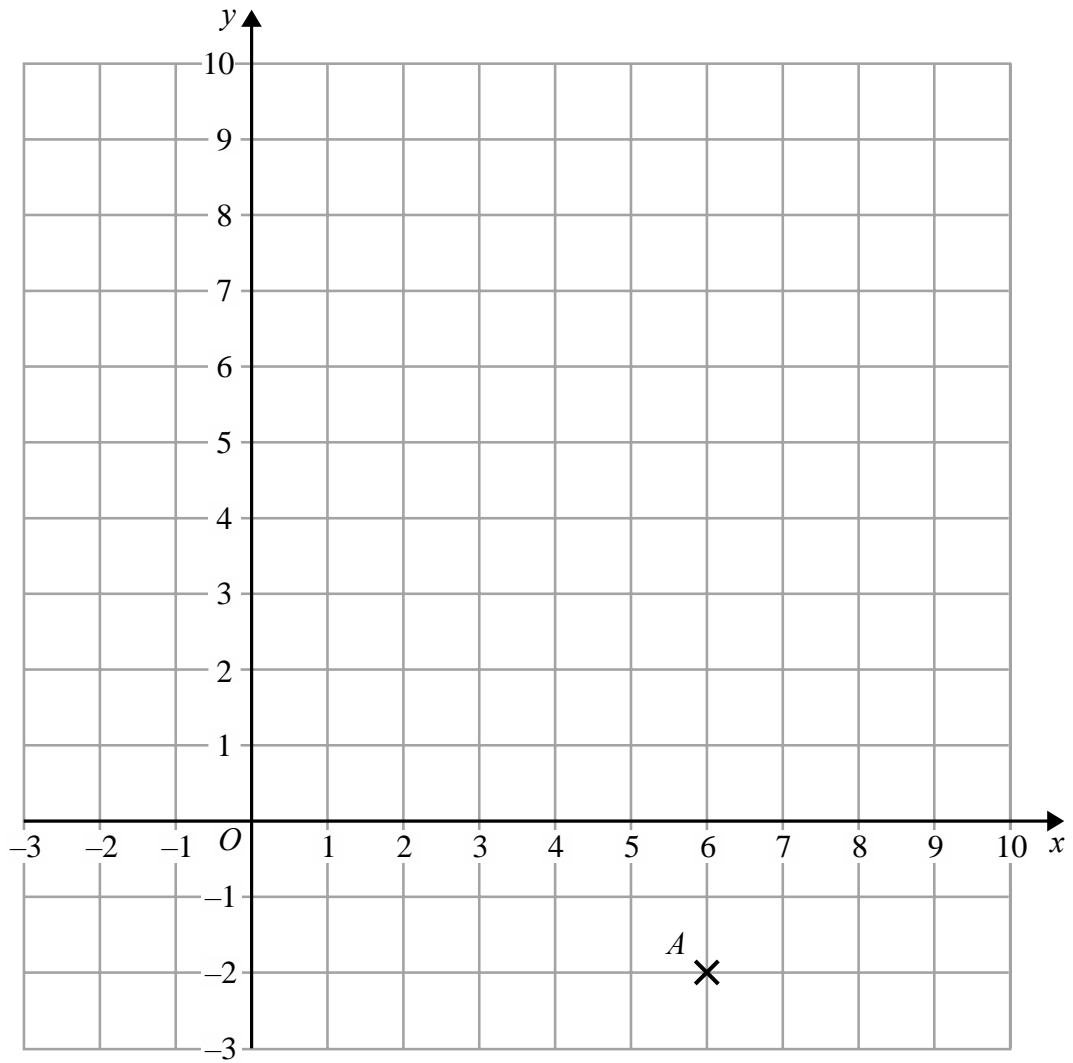
(c) Use your graph to find the value of  $x$  when  $y = 0.3$

$x = \dots\dots\dots$

(1)

**(Total for Question 7 is 5 marks)**





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

( ..... , ..... )  
(1)

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(b) (i) Plot the point with coordinates (2, 9).  
Label this point *B*.

**(1)**

(ii) Does point *B* lie on the straight line with equation  $y = 4x + 1$ ?  
You must show how you get your answer.

.....  
.....

**(1)**

(c) On the grid, draw the line with equation  $x = -2$

**(1)**

**(Total for Question 8 is 4 marks)**

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**9** Here are the equations of four straight lines.

Line A  $y = 2x + 4$

Line B  $2y = x + 4$

Line C  $2x + 2y = 4$

Line D  $2x - y = 4$

Two of these lines are parallel.

Write down the two parallel lines.

Line ..... and line.....

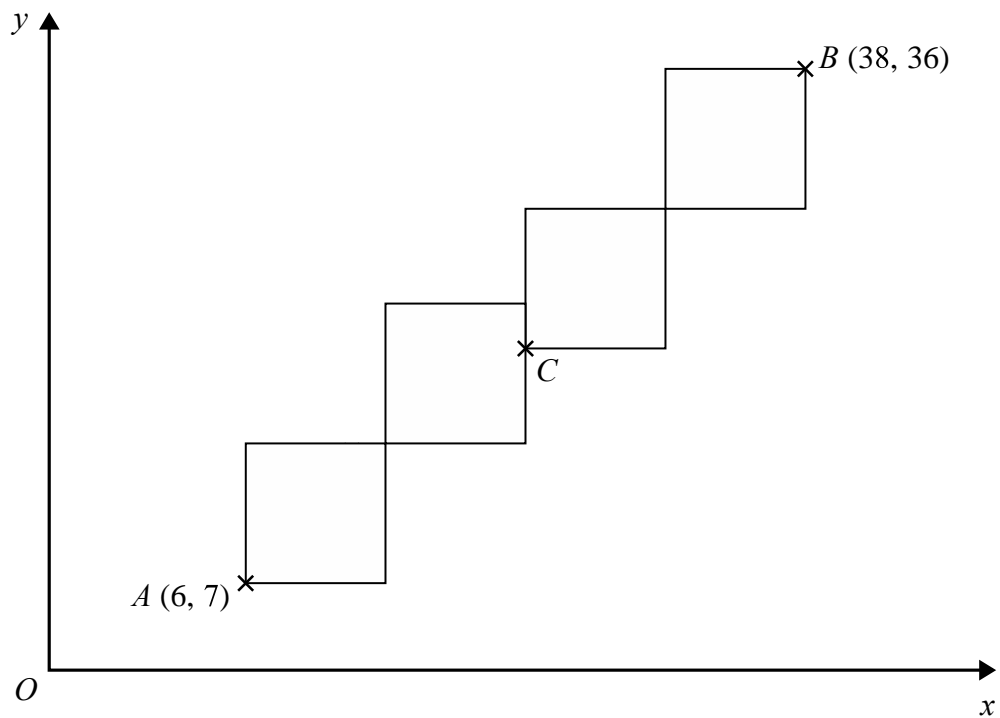
**(Total for Question 9 is 1 mark)**

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- 10 A pattern is made from four identical squares.  
The sides of the squares are parallel to the axes.



Point *A* has coordinates (6, 7)  
Point *B* has coordinates (38, 36)  
Point *C* is marked on the diagram.

Work out the coordinates of *C*.

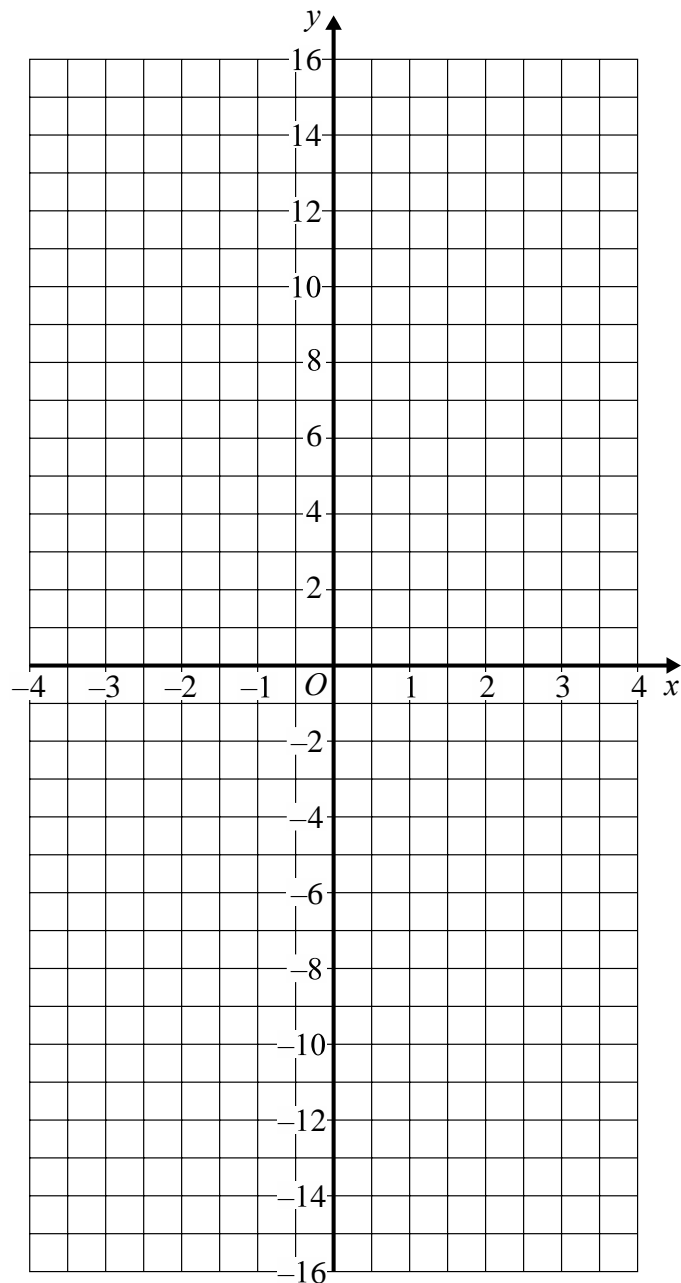
(..... , .....) )

**(Total for Question 10 is 5 marks)**

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- 11** On the grid below, draw the graph of  $y = 1 - 4x$  for values of  $x$  from  $-3$  to  $3$ .

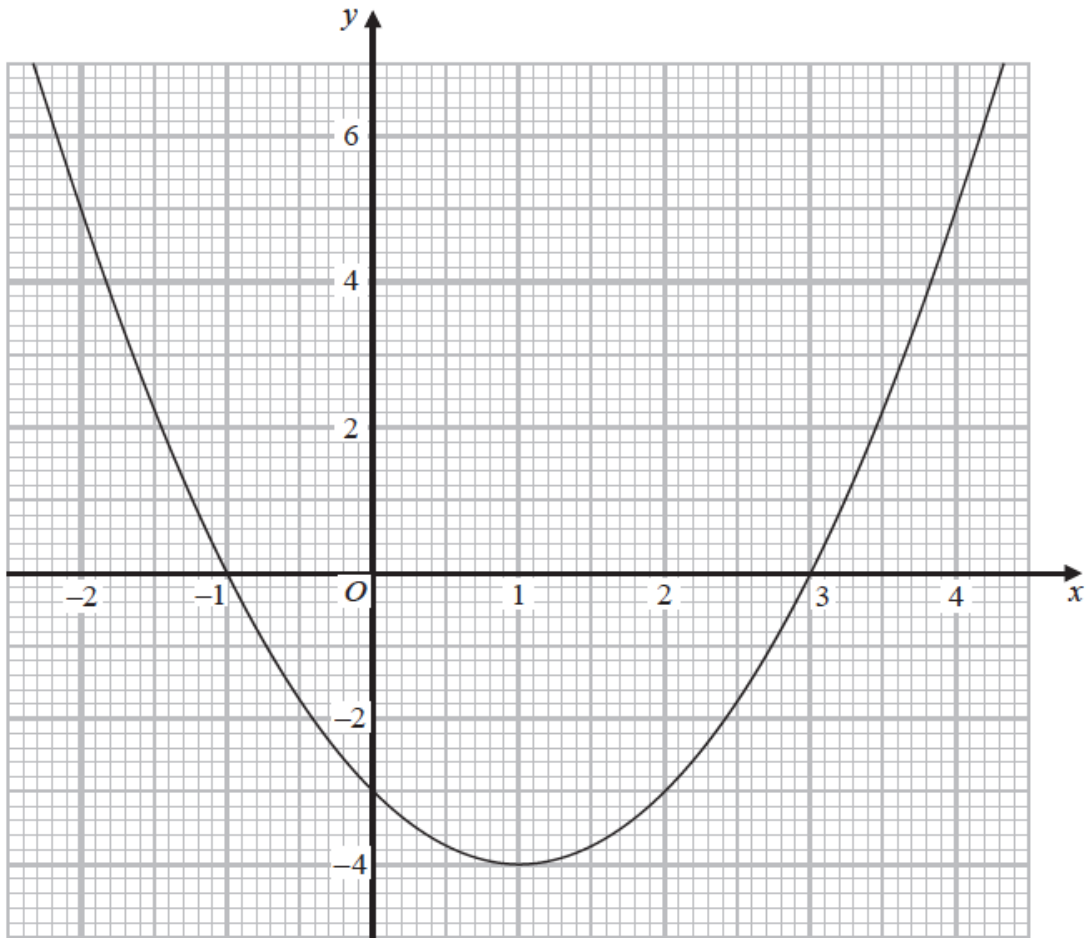


**(Total for Question 11 is 3 marks)**

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12 Here is the graph of  $y = x^2 - 2x - 3$



(a) Write down the coordinates of the turning point on the graph of  $y = x^2 - 2x - 3$

(....., .....) (1)

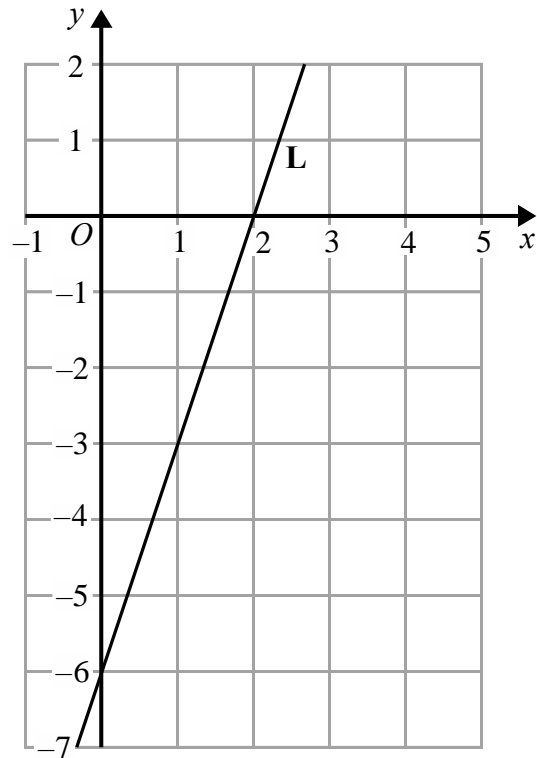
(b) Use the graph to find the roots of the equation  $x^2 - 2x - 3 = 0$

..... (2)

**(Total for Question 12 is 3 marks)**

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**13** The line **L** is shown on the grid.



Find an equation for **L**.

.....  
**(Total for Question 13 is 3 marks)**

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- 14** The equation of the line  $L_1$  is  $y = 3x - 2$   
The equation of the line  $L_2$  is  $3y - 9x + 5 = 0$   
Show that these two lines are parallel.

**(Total for Question 14 is 2 marks)**

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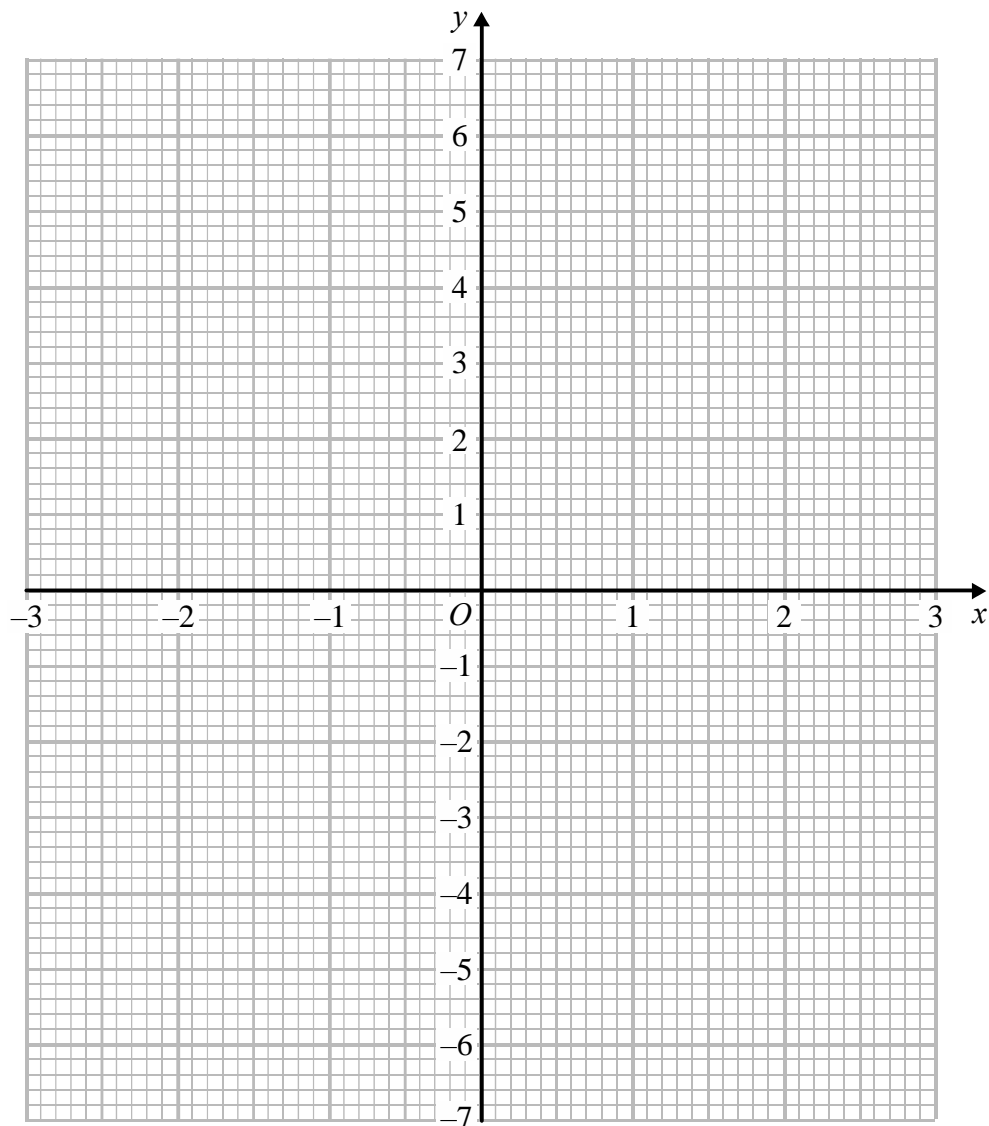
15 (a) Complete the table of values for  $y = x^2 - x - 6$

|     |    |    |    |    |   |   |   |
|-----|----|----|----|----|---|---|---|
| $x$ | -3 | -2 | -1 | 0  | 1 | 2 | 3 |
| $y$ | 6  |    |    | -6 |   |   |   |

(b) On the grid, draw the graph of  $y = x^2 - x - 6$  for values of  $x$  from -3 to 3.

(2)

(2)





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(c) Use your graph to find estimates of the solutions to the equation  $x^2 - x - 6 = -2$

.....  
(2)

**(Total for Question 15 is 6 marks)**

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**16** *A* is the point with coordinates (5, 9)  
*B* is the point with coordinates (*d*, 15)

The gradient of the line *AB* is 3

Work out the value of *d*.

.....  
**(Total for Question 16 is 3 marks)**

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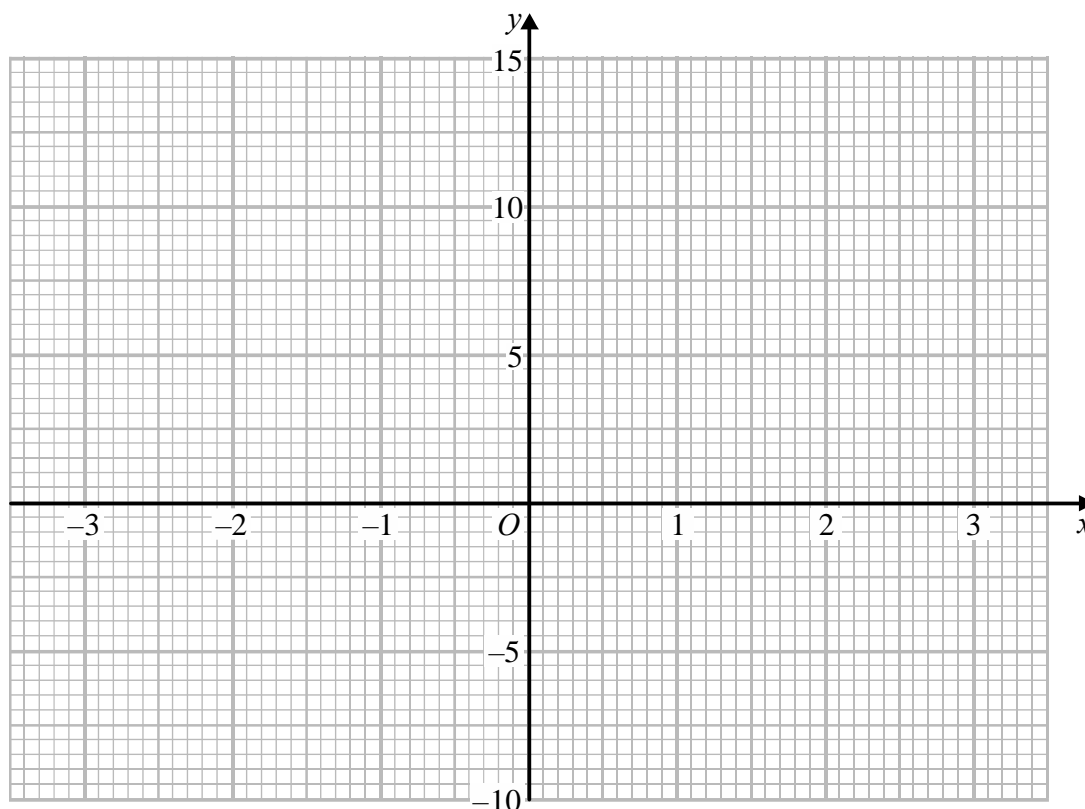
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17 (a) Complete this table of values for  $y = x^2 + x - 4$

|     |    |    |    |   |    |   |   |
|-----|----|----|----|---|----|---|---|
| $x$ | -3 | -2 | -1 | 0 | 1  | 2 | 3 |
| $y$ |    | -2 | -4 |   | -2 |   |   |

(2)

(b) On the grid, draw the graph of  $y = x^2 + x - 4$  for values of  $x$  from -3 to 3



(2)

(c) Use the graph to estimate a solution to  $x^2 + x - 4 = 0$

.....  
(1)

**(Total for Question 17 is 5 marks)**

**TOTAL MARKS FOR PAPER: 58**