Name: _____

GCSE (1 – 9)

The Equation of a Line

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
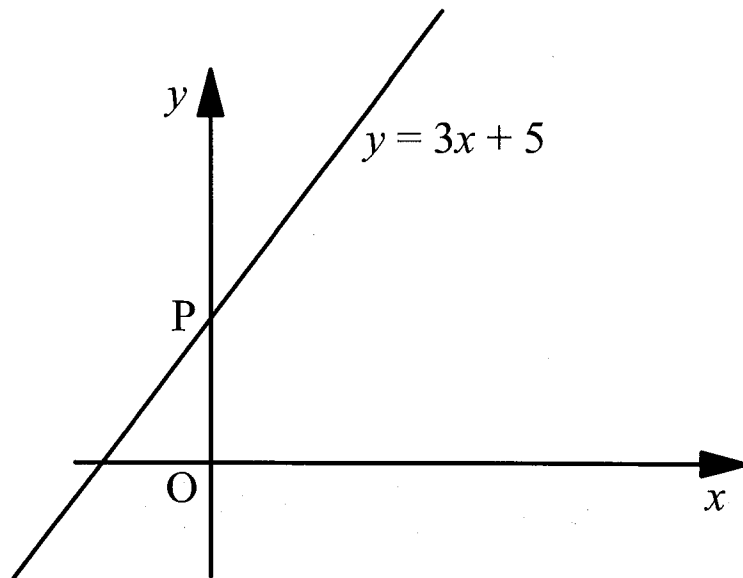- You must **show all your working out.**

Information

- 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

1

$$y = 3x + 5$$

(a) The line $y = 3x + 5$ crosses the y axis at P.
What is the value of y at P?

$$5$$

(1)

(b) Write down the equation of another line which is parallel to $y = 3x + 5$

Any other line with
$$m = 3$$

$$y = 3x + 1$$

(1)

(Total for Question 1 is 2 marks)

2 A line passes through the point (0, 4).
The gradient of this line is 2.
Write down the equation of this line.

$$y = 2x + 4$$

(Total for Question 2 is 2 marks)

3 A line passes through the point (0, -5).
The gradient of this line is 3.
Write down the equation of this line.

$$y = 3x - 5$$

(Total for Question 3 is 2 marks)

4 A straight line has equation $y = 5 - 3x$

(a) Write down the gradient of the line.

$$-3$$

(1)

(b) Write down the coordinates of the point where the line crosses the y axis.

$$(0, 5)$$

(1)

(Total for Question 4 is 2 marks)

5 A straight line has equation $y = 3x - 2$

(a) Write down the gradient of the line.

$$3$$

(1)

(b) Write down the coordinates of the point where the line crosses the y axis.

$$(0, -2)$$

(1)

(Total for Question 5 is 2 marks)

6 A straight line has equation $y = 2 - x$

(a) Write down the gradient of the line.

$$-1$$

(1)

(b) Write down the coordinates of the point where the line crosses the y axis.

$$(0, 2)$$

(1)

(Total for Question 6 is 2 marks)

7 A straight line has equation $y = 4x + 3$

(a) Write down the gradient of the line.
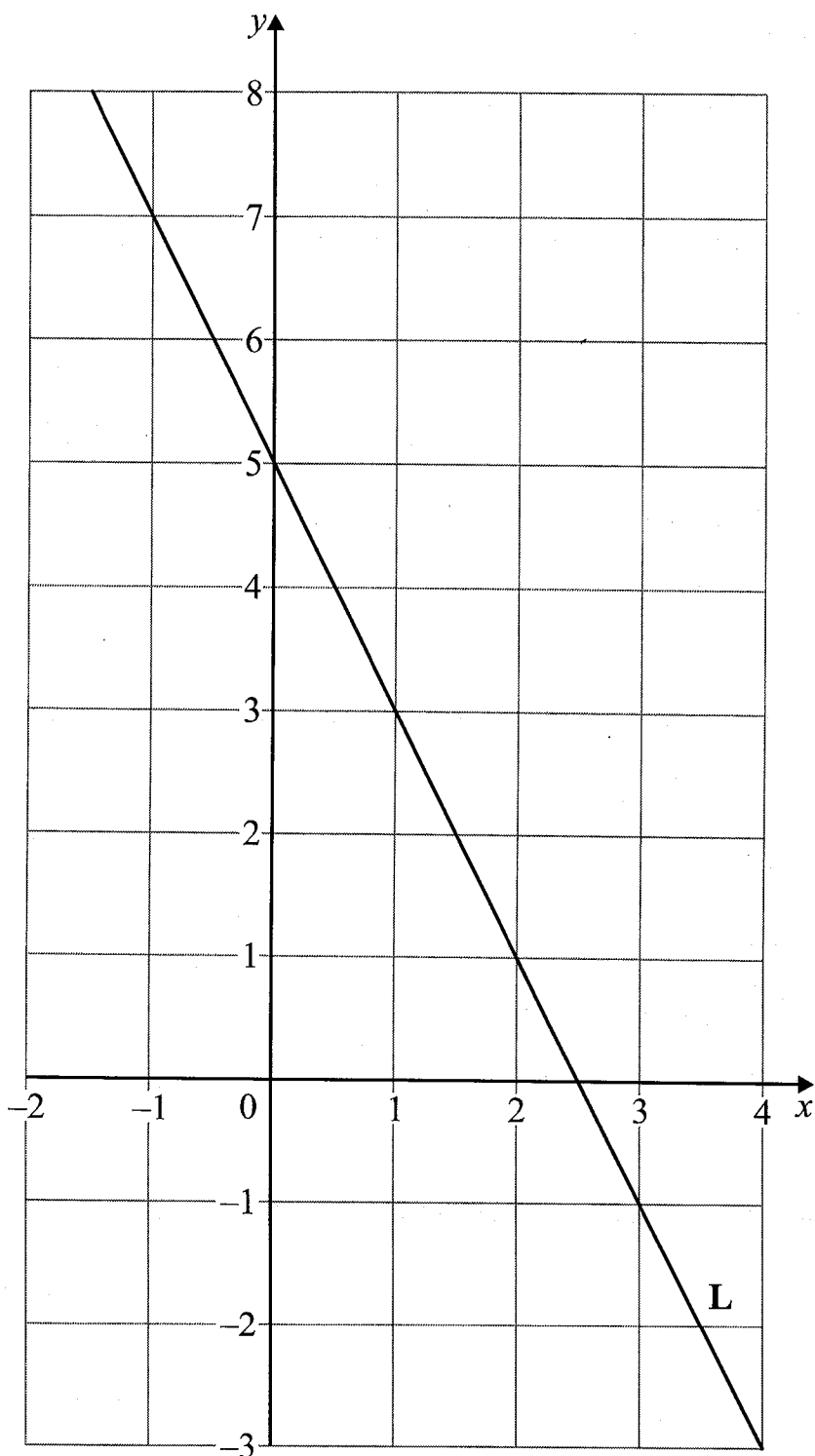
$$4$$

(1)

(b) Write down the coordinates of the point where the line crosses the y axis.

$$(0, 3)$$

(1)

(Total for Question 7 is 2 marks)

8

Find the equation of line L.

$y = -2x + 5$

(Total for Question 8 is 3 marks)

9 A straight line has equation $2y - 10x = 8$

(a) Work out the gradient of this line.

$$y - 5x = 4$$
$$y = 5x + 4$$

........................5........................

(2)

(b) Write down the equation of a line parallel to this line.

Any other line with $m = 5$ ....$y = 5x + 1$........

(1)

(Total for Question 9 is 3 marks)

10 A straight line has equation $4y - 5x = 2$

(a) Work out the gradient of this line.

$$4y = 5x + 2$$
$$y = \frac{5}{4}x + \frac{1}{2}$$

........................$\dfrac{5}{4}$........................

(2)

(b) Write down the equation of a line parallel to this line.

Any other line with $m = \dfrac{5}{4}$ ....$y = \dfrac{5}{4}x + 1$........

(1)

(Total for Question 10 is 3 marks)

11 The line with equation $x + 2y = 6$ has been drawn on the grid.
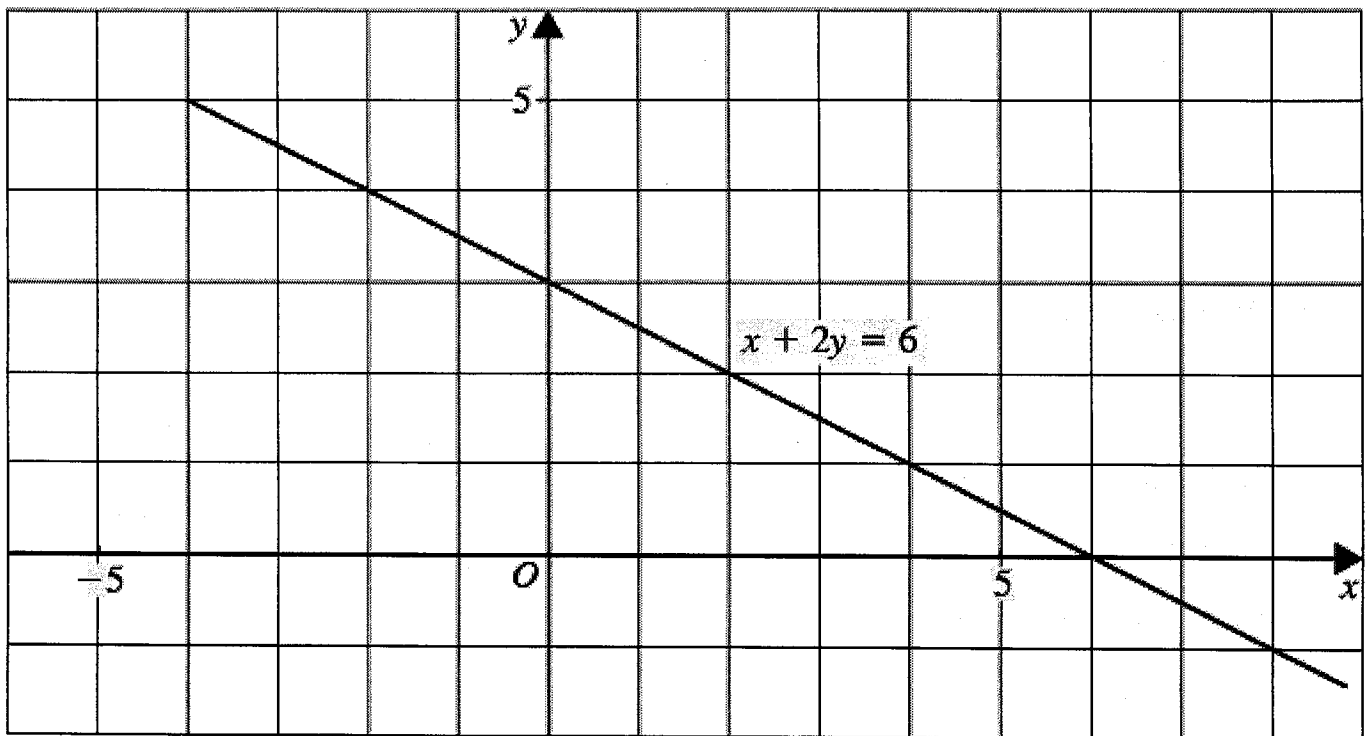
(a) Rearrange the equation $x + 2y = 6$ to make y the subject.

$$2y = -x + 6$$
$$y = -\frac{1}{2}x + 3$$

............$y = -\frac{1}{2}x + 3$............

(2)

(b) Write down the gradient of the line with equation $x + 2y = 6$
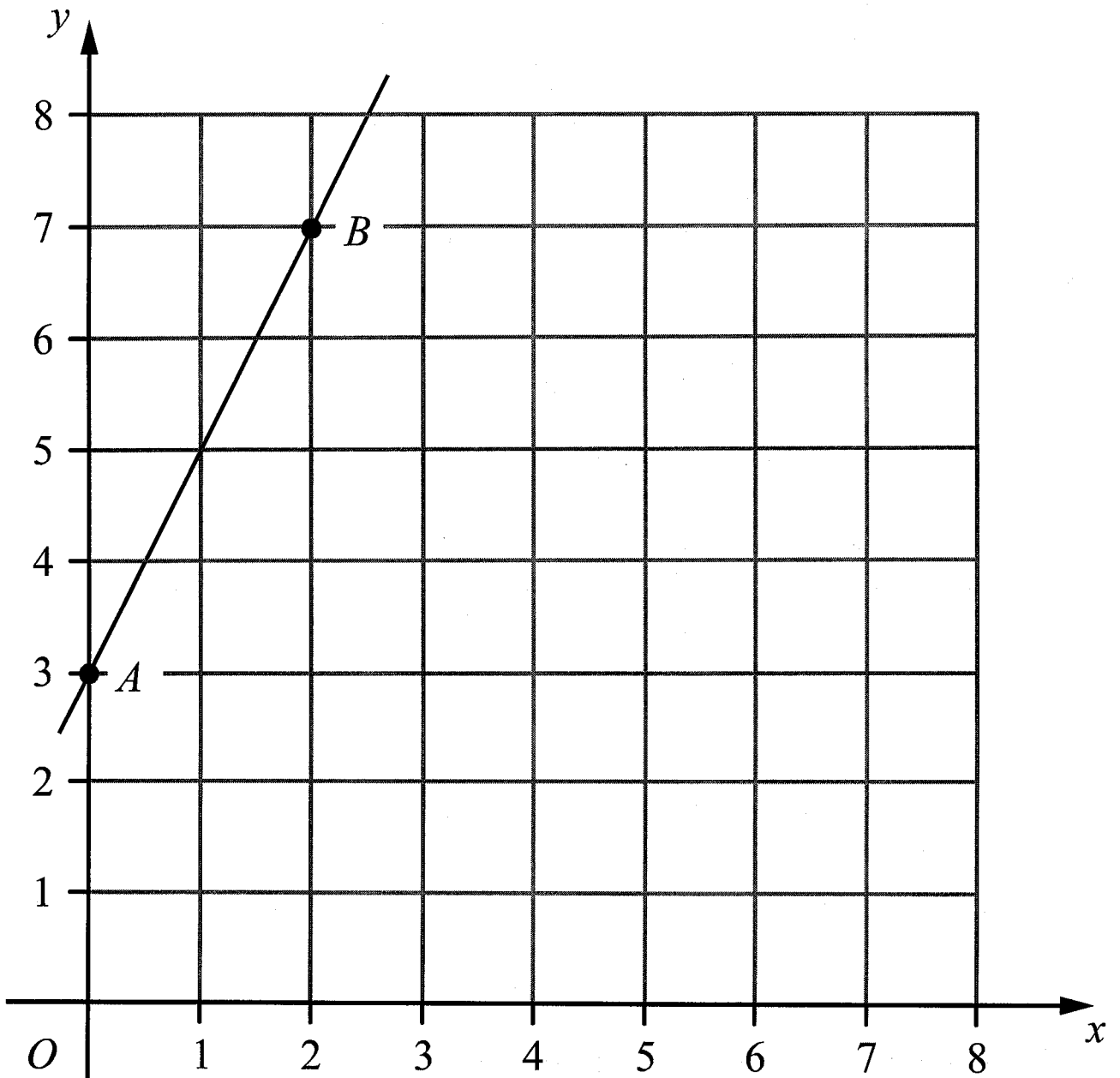
............$-\frac{1}{2}$............

(2)

(c) Write down the equation of the line which is parallel to the line with equation $x + 2y = 6$ and passes through the point with coordinates (0, 7).

............$y = -\frac{1}{2}x + 7$............

(1)

(Total for Question 11 is 5 marks)

12
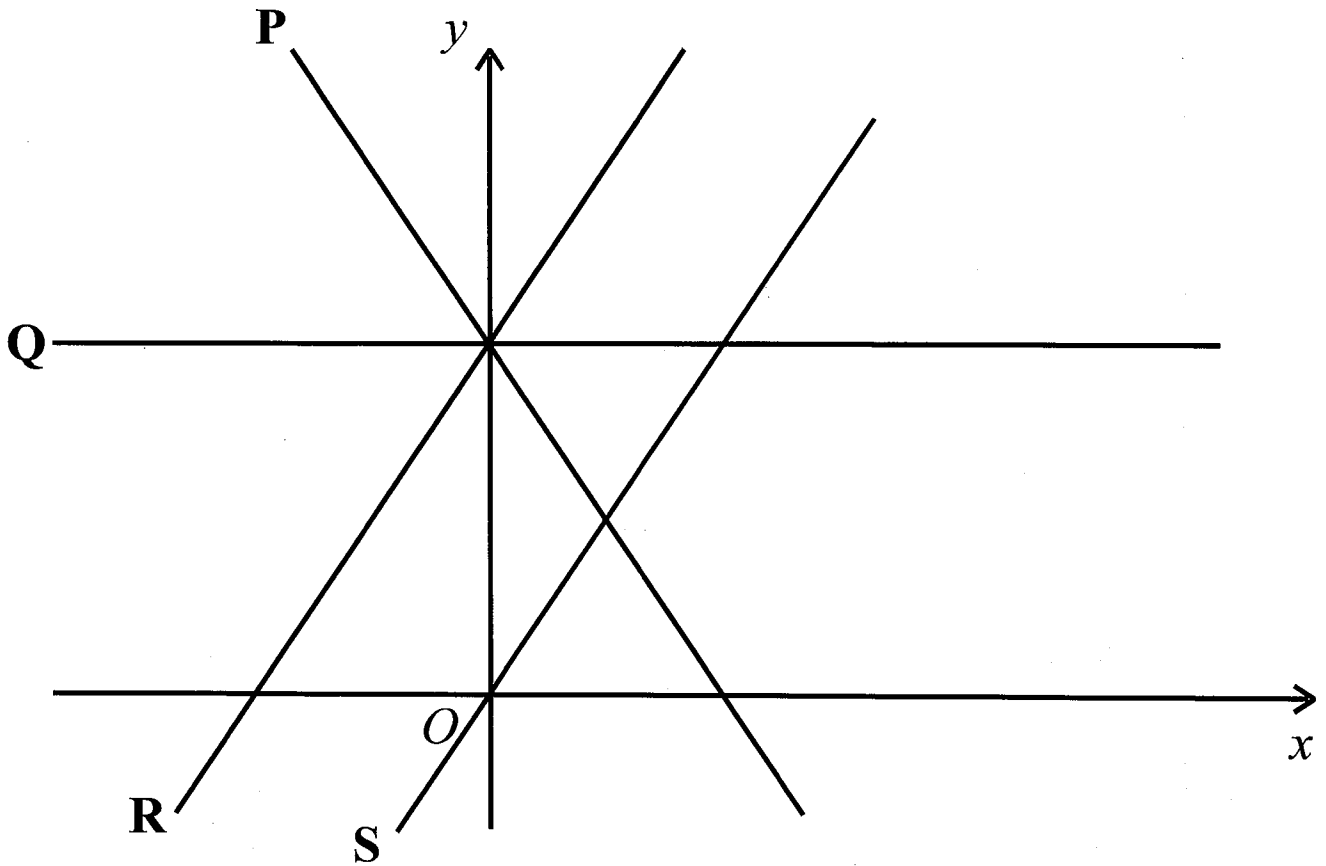

Find the equation of the line that passes through A and B.

$$y = 2x + 3$$

The diagram shows 4 straight lines, labelled P, Q, R and S.
The equations of the straight lines are:

A: $y = 2x$
B: $y = 3 - 2x$
C: $y = 2x + 3$
D: $y = 3$

Match each straight line, P, Q, R and S to its equation.
Complete the table.

Equation	A	B	C	D
Straight line	S ~~R~~	P	R	Q

(Total for Question 13 is 2 marks)