

1 Point A has coordinates $(-3, 11)$

Point B has coordinates $(47, b)$

The midpoint of AB has coordinates $(a, -19)$

Find the value of a and the value of b .

$$\text{midpoint AB} = \frac{x_A + x_B}{2}, \frac{y_A + y_B}{2}$$

$$a = \frac{-3 + 47}{2} = 22 \quad (1)$$

$$-19 = \frac{11 + b}{2} \quad \downarrow \times 2$$

$$-38 = 11 + b$$

$$-49 = b \quad \downarrow +11$$

$$a = 22 \quad (1)$$

$$b = -49$$

(Total for Question 1 is 2 marks)

- 2 Find the gradient of the straight line with equation $5x + 2y = 7$

Equation of straight line : $y = mx + c$

Rearrange equation to
 $y = mx + c$

where m = gradient
 c = y -intercept

$$5x + 2y = 7$$

$$2y = -5x + 7$$

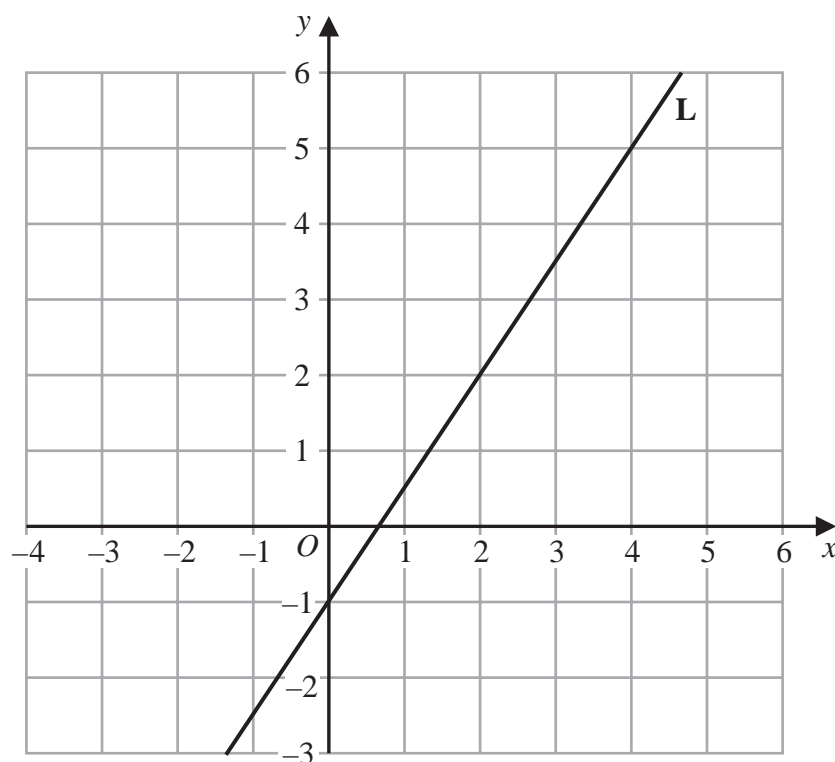
$$y = \boxed{-\frac{5}{2}}x + \frac{7}{2} \quad \textcircled{1}$$

← gradient, m

$$-\frac{5}{2} \quad \textcircled{1}$$

(Total for Question 2 is 2 marks)

3 Line **L** is drawn on the grid.



Find an equation for **L**

Give your answer in the form $y = mx + c$

$$c = y\text{-intercept} = -1 \quad (1)$$

$$\text{gradient} : \frac{5 - (-1)}{4 - 0}$$

$$= \frac{6}{4} = \frac{3}{2} \quad (1)$$

$$y = \frac{3}{2}x - 1 \quad (1)$$

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

(Total for Question 3 is 3 marks)

- 4 (a) Write down an equation of the straight line with gradient -3 and which passes through the point with coordinates $(0, 5)$

$$y = mx + c$$

$$5 = -3(0) + c$$

$$c = 5$$

$$\therefore y = -3x + 5 \quad (2)$$

$$y = -3x + 5$$

(2)

(Total for Question 4 is 2 marks)

5 (d) Write down an equation of the line.

$$m = \frac{4 - 0}{0 - 2} \quad (1)$$
$$= -2$$

$$y = -2x + 4 \quad (1)$$

$$y = -2x + 4$$

(2)

(Total for Question 5 is 2 marks)