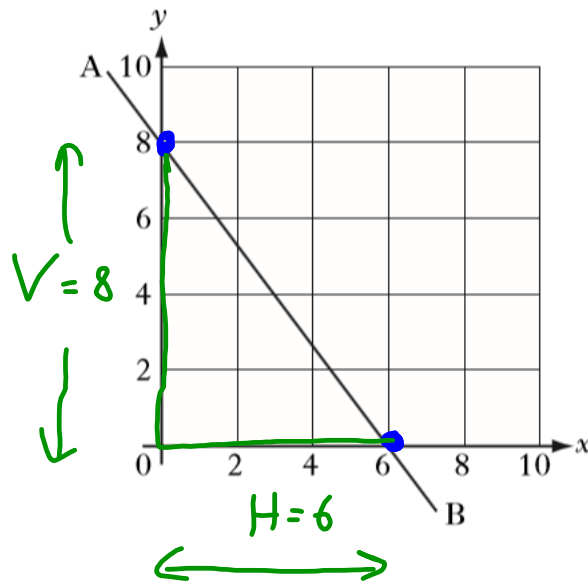


Equation of a Straight Line

1)



Find the equation of the straight line AB shown in the diagram.

3

Using points $(0, 8)$ $(6, 0)$
 x y x y

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{8 - 0}{0 - 6}$$

$$= \frac{8}{-6}$$

$$= -\frac{4}{3} \quad \checkmark$$

$$\text{or } m = \frac{V}{H}$$

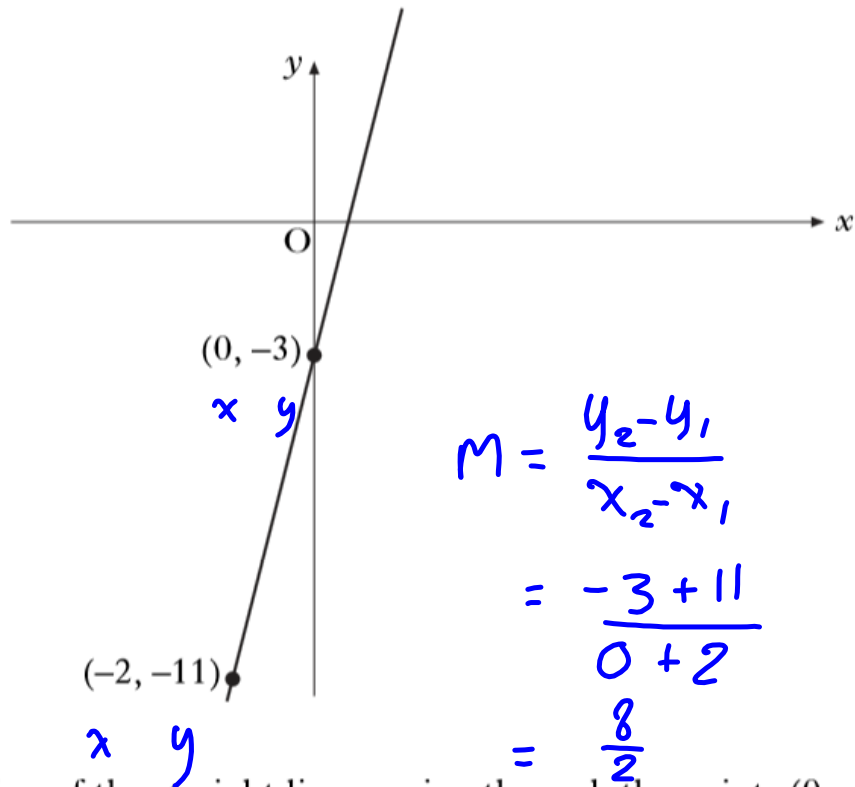
$$= -\frac{8}{6}$$

$$= -\frac{4}{3}$$

$$y = mx + c$$

$$y = -\frac{4}{3}x + 8 \quad \checkmark \quad \checkmark$$

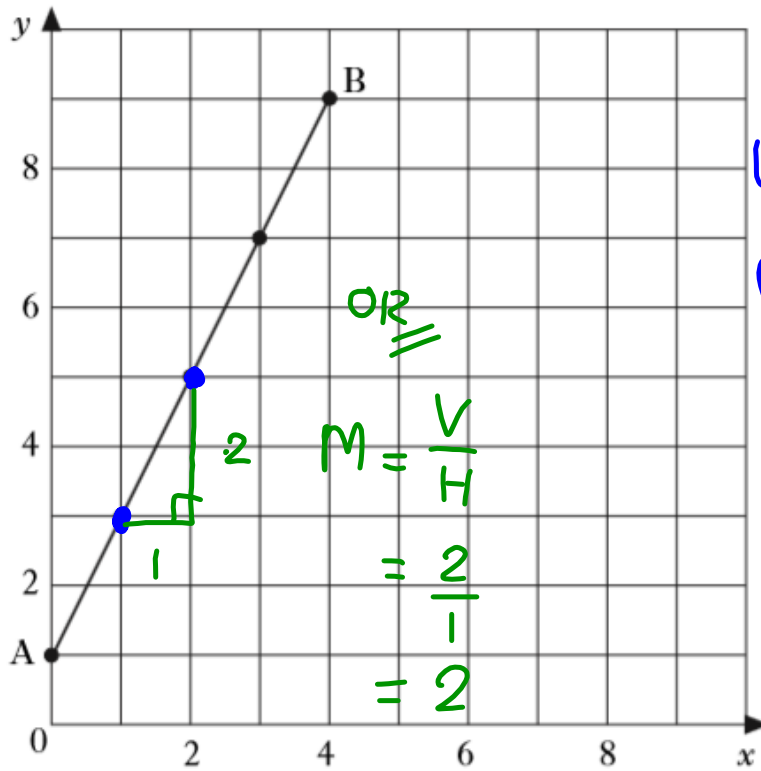
2)



Find the equation of the straight line passing through the points $(0, -3)$ and $(-2, -11)$.

$$y = mx + c$$
$$y = 4x - 3$$

3)



Use any 2 points

$$\begin{matrix} (1, 3) & (2, 5) \\ x & y & x & y \end{matrix}$$

$$M = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{5 - 3}{2 - 1}$$

$$= \frac{2}{1}$$

$$= 2 \checkmark$$

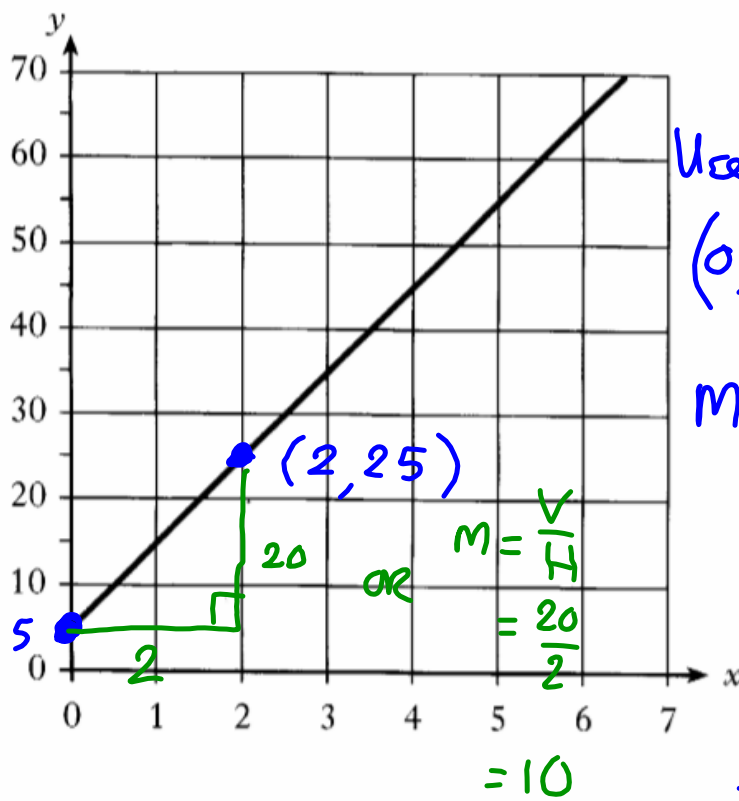
(3)

Find the equation of the straight line AB.

$$y = mx + c$$

$$y = 2x + 1$$

4)



Use any 2 points
(0, 5) (2, 25)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{25 - 5}{2 - 0}$$

$$= \frac{20}{2}$$

$$= 10 \checkmark$$

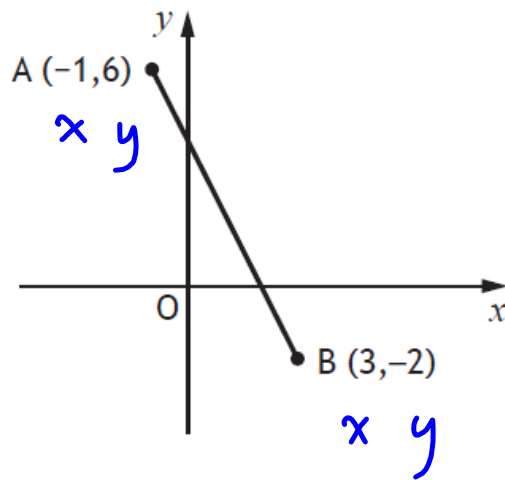
Find the equation of the straight line.

$$y = mx + c$$
$$y = 10x + 5$$

✓ ✓

5)

The diagram below shows the straight line joining points A and B.



$$\begin{aligned} m_{AB} &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{6 - (-2)}{-1 - 3} \\ &= \frac{8}{-4} \\ &= -2 \quad \checkmark \end{aligned}$$

Find the equation of the line AB.

Give the equation in its simplest form.

$$y = mx + c$$

$$y = -2x + c$$

find c , use $\begin{pmatrix} -1 \\ x \end{pmatrix}, \begin{pmatrix} 6 \\ y \end{pmatrix}$ or $\begin{pmatrix} 3 \\ x \end{pmatrix}, \begin{pmatrix} -2 \\ y \end{pmatrix}$

$$6 = -2 \times (-1) + c \quad \checkmark$$

$$6 = 2 + c$$

$$c = 4$$

$$\text{So } y = -2x + 4 \quad \checkmark$$

6)

A straight line is represented by the equation $x + y = 5$.

Find the gradient of this line.

2

$$x + y = 5$$

-x

-x

$$y = 5 - x \quad \text{or} \quad y = -x + 5$$

✓


So $\underline{\underline{M = -1}}$ ✓

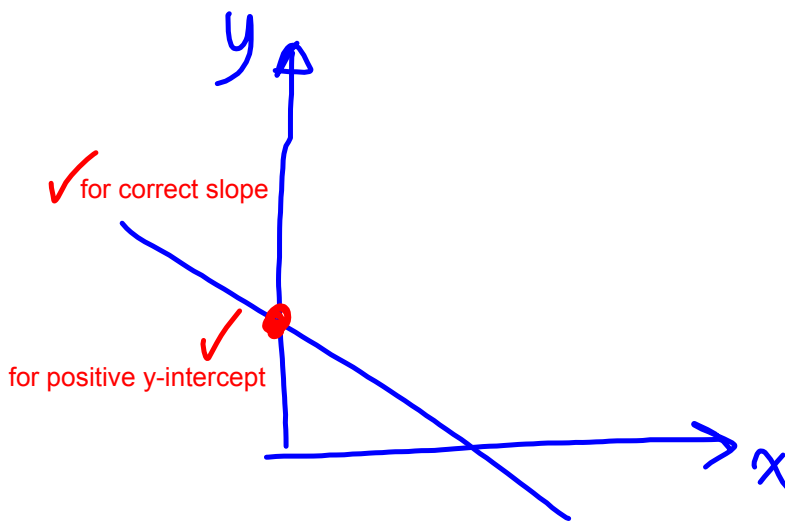
7)

A straight line is represented by the equation $y = mx + c$.

Sketch a possible straight line graph to illustrate this equation when $m < 0$ and $c > 0$.

$c > 0$ y-intercept positive

$m < 0$
gradient
negative
So 



8)

A straight line has equation $2y + 3x = 12$.

(a) Find the gradient of this line.

2

(b) The line crosses the y -axis at $(0, c)$.

Find the value of c .

1

$$\begin{aligned} \text{a) } 2y + 3x &= 12 \\ &\quad \quad \quad -3x \quad \quad -3x \\ 2y &= 12 - 3x \\ \div 2 \quad \quad \quad \div 2 \quad \quad \div 2 \\ y &= 6 - \frac{3}{2}x \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{b) } c &= 6 \quad \checkmark \\ &(0, 6) \end{aligned}$$

$$\text{So } m = -\frac{3}{2} \quad \checkmark$$