# Quick Test - Straight Line Graphs

Here's some notes:
- Straight line graphs follow the general form 'y = mx + c'
- 'm' is the gradient - the easiest way to calculate is the difference in y / difference in x
- Gradients that look like a tick are positive
- The other way is negative
- 'c' means the point that the line crosses the y axis
- If you don't know 'c' use any set of co-ordinates to calculate
- You'll only usually need 3 or 4 points to draw a straight line, on an exam
- The line goes on forever (might be useful to work out some answers)

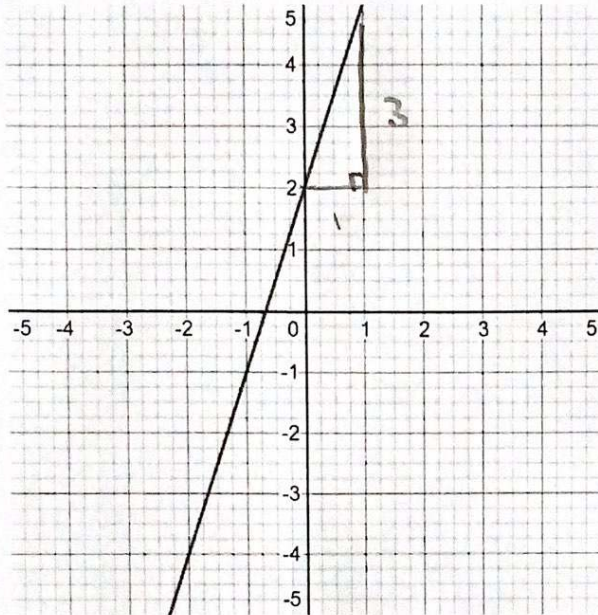1. The line L is drawn on the grid below. Find the gradient of line L.
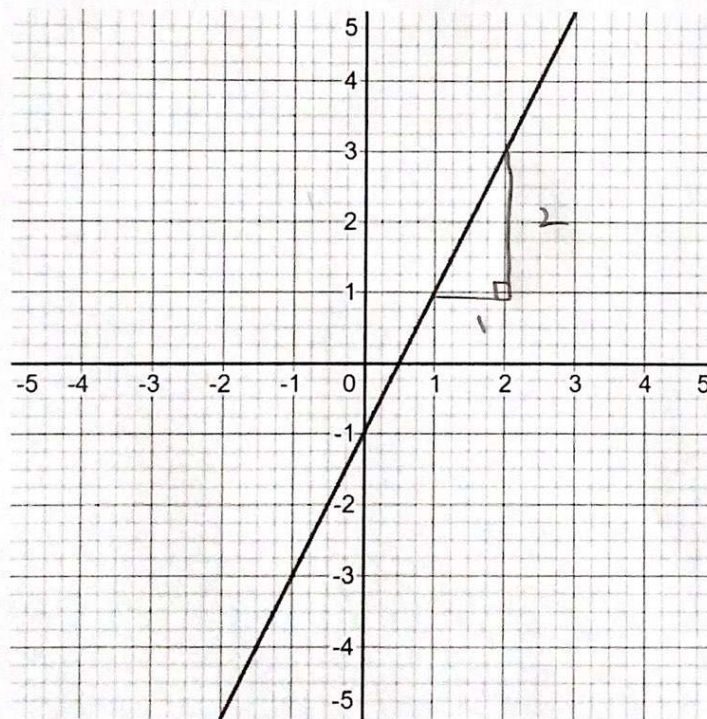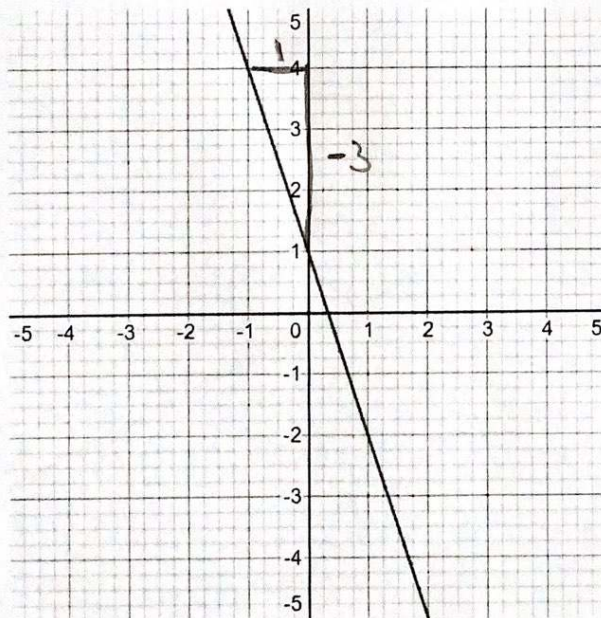

Gradient 2.

2. The line L is drawn on the grid below. Find the gradient of line L.

Gradient $= \dfrac{3}{1} = \underline{\underline{3}}$.

3. The line L is drawn on the grid below. Find the gradient of line L.
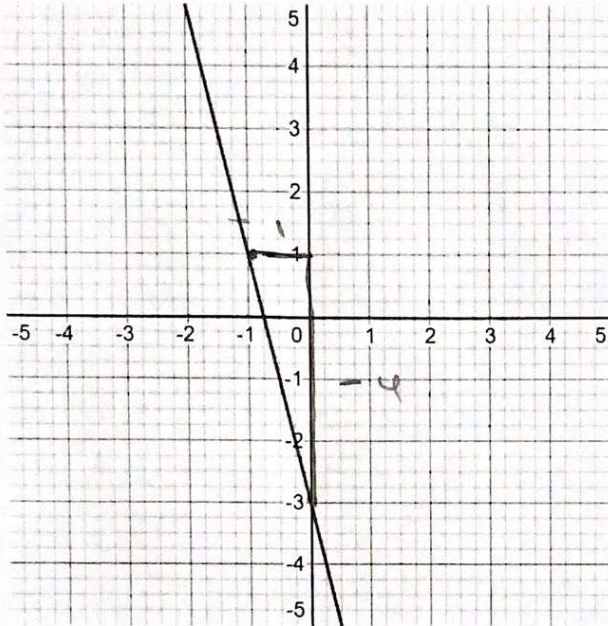

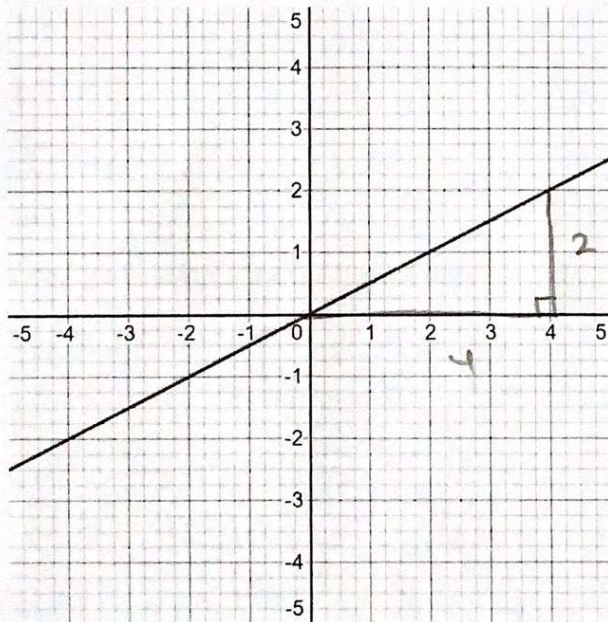Gradient $= \dfrac{-3}{1} = \underline{\underline{-3}}$.

4. The line L is drawn on the grid below. Find the gradient of line L.

$$\text{Gradient} = \frac{-4}{1} = -4$$

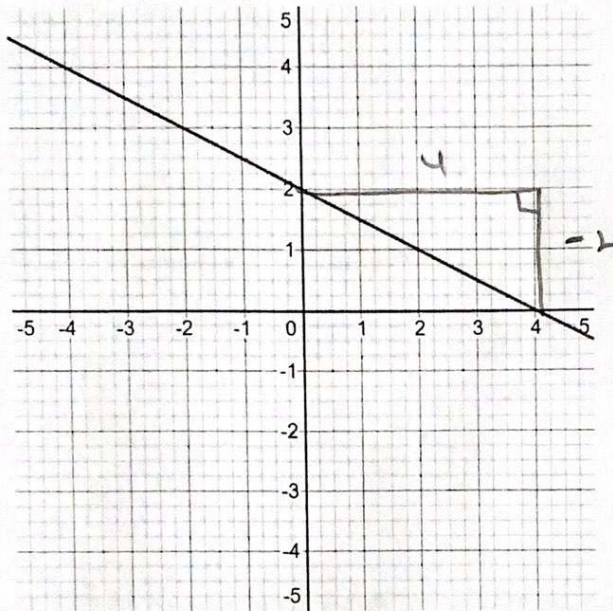5. The line L is drawn on the grid below. Find the gradient of line L.

$$\text{Gradient} = \frac{2}{4} = \frac{1}{2}$$
$$= 0.5$$

6. The line L is drawn on the grid below. Find the gradient of line L.

Gradient $= \dfrac{-2}{4}$

$= -\dfrac{1}{2}$

$= -0.5$

7. Find the gradient of the line that passes through the coordinates (2, 1) and (4, 7)

$x_1 y_1 \quad x_2 y_2$

Gradient $= \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{7-1}{4-2} = \dfrac{6}{2} = 3$

8. Find the gradient of the line that passes through the coordinates (-3, 4) and (1, 6)

$x_1 y_1 \quad x_2 y_2$

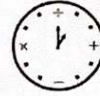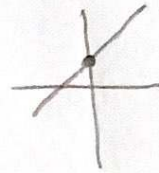Gradient $= \dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{6-4}{1--3} = \dfrac{2}{4} = \dfrac{1}{2}$

9. Find the gradient of the line that passes through the coordinates (1, -1) and (-3, -9)

$$\text{Gradient} = \frac{l_2 - l_1}{x_2 - x_1} = \frac{-9 - -1}{-3 - 1}$$

$$= \frac{-8}{-4} = \underline{\underline{2}}$$

10. Find the **equation** of the straight line with gradient 3, passing through the point (1, 5)

$$y = mx + c$$
$$5 = 3(1) + c$$
$$5 = 3 + c$$
$$2 = c$$

$$y = 3x + 2. \underline{\underline{}}$$

11. Find the equation of the straight line with gradient 4, passing through the point (1, 3)

$$y = mx + c$$
$$3 = 4(1) + c$$
$$3 = 4 + c$$
$$-1 = c$$

$$y = 4x - 1 \underline{\underline{}}$$

12. Find the equation of the straight line with gradient -2, passing through the point (-2, 3)

$$y = mx + c$$
$$3 = -2(-2) + c$$
$$3 = 4 + c$$
$$-1 = c$$

$$y = -2x - 1 \underline{\underline{}}$$
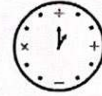
Q13. Find the equation of the straight line which passes through the points (1, 4) and (4, 10)

$y = mx + c$

$y = 2x + c$

$4 = 2(1) + c$

$4 = 2 + c$

$2 = c$

$\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{10 - 4}{4 - 1} = \dfrac{6}{3} = 2$

$y = 2x + 2$

Q14. Find the equation of the straight line which passes through the points (6, 2) and (12, 5)

$y = mx + c$

$y = \frac{1}{2}x + c$

$2 = \frac{1}{2}(6) + c$

$2 = 3 + c$

$-1 = c$

$\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{5 - 2}{12 - 6} = \dfrac{3}{6} = \dfrac{1}{2}$

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

$x_1 \, y_1 \qquad x_2 \, y_2$

Q15. Find the equation of the straight line which passes through the points (1, -5) and (-3, 7)

$y = mx + c$

$y = -3x + c$

$-5 = -3(1) + c$

$-5 = -3 + c$

$-2 = c$

$\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{7 - -5}{-3 - 1} = \dfrac{12}{-4} = -3$

$y = -3x - 2$.