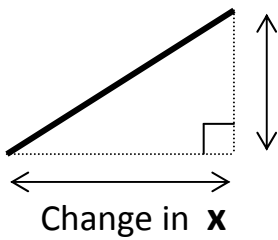
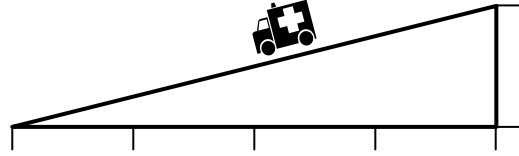


Gradients tell you how **steep** a slope is.



This road sign warns that the road has a steep gradient.

For every **4 units** you travel horizontally you go up (or down) **1 unit**.



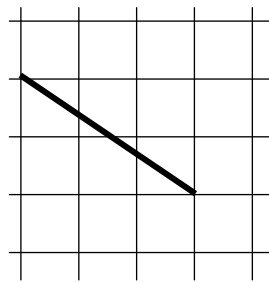
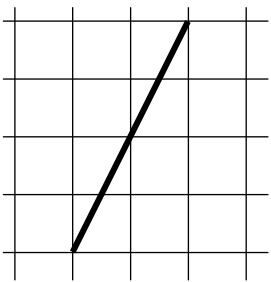
Change in **y**

In maths lines have gradients too.

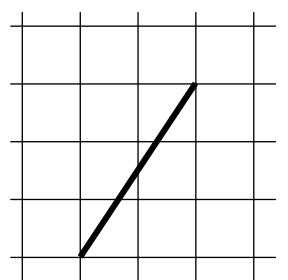
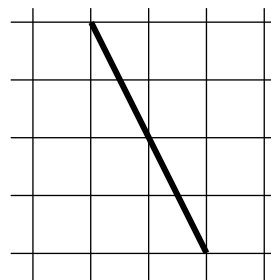
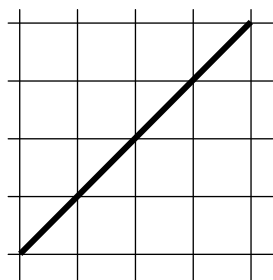
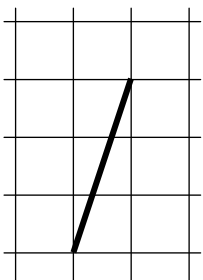
$$\text{Gradient} = \frac{\text{Change in } \mathbf{y}}{\text{Change in } \mathbf{x}}$$

These lines have **positive** gradients.

These lines have **negative** gradients.

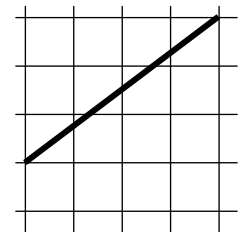
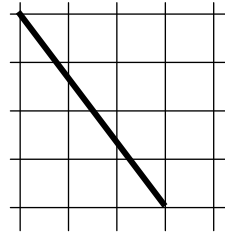
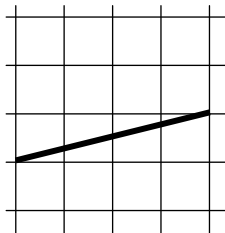
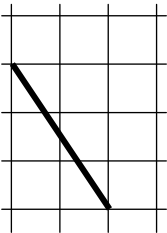
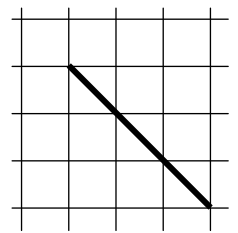
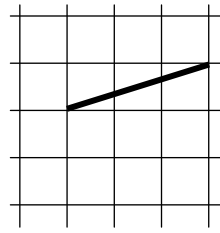
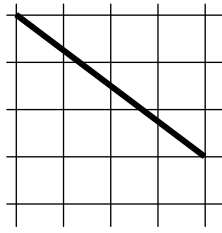
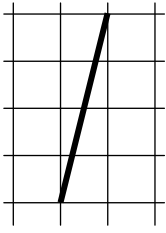


What is the **gradient** of each line ?

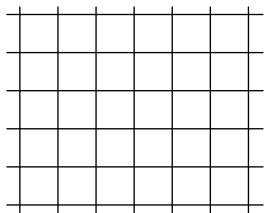


Gradients

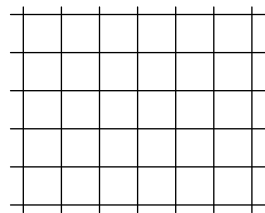
Work out the **gradient** of each line.



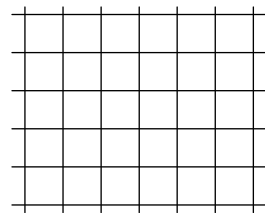
Draw lines with these **gradients**.



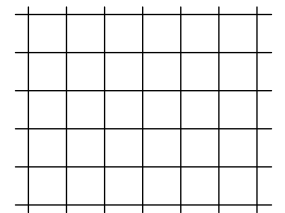
$$\frac{2}{5}$$



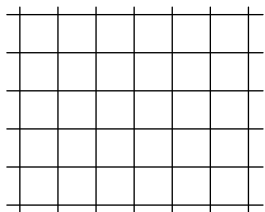
$$\frac{5}{2}$$



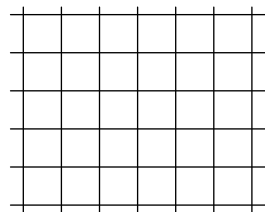
$$-\frac{3}{6}$$



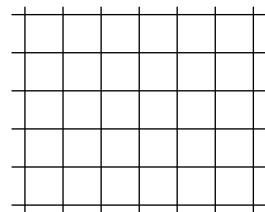
$$-\frac{5}{4}$$



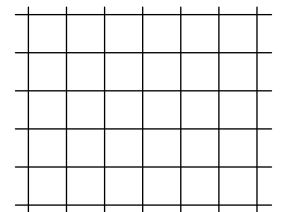
$$\frac{1}{5}$$



$$-\frac{1}{5}$$



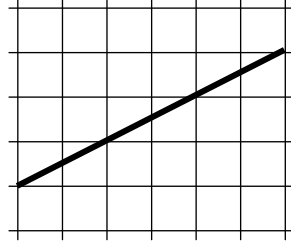
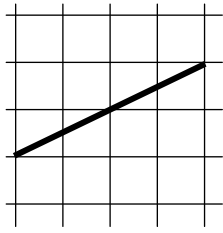
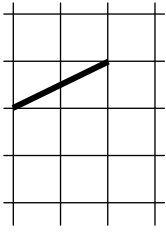
$$5$$



$$-5$$

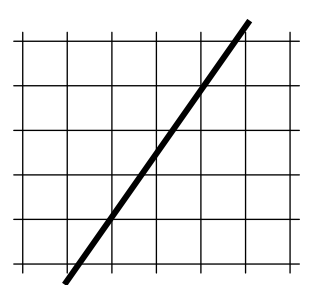
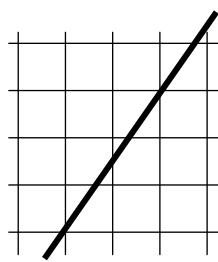
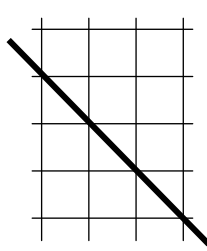
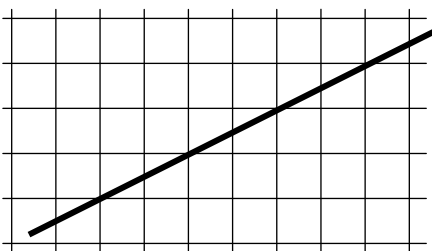
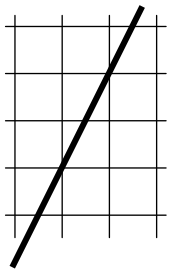
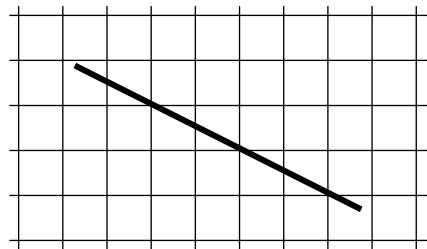
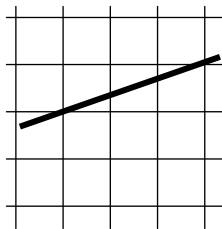
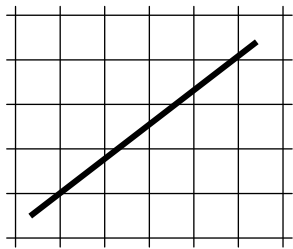
Gradients

Work out the **gradient** of each line.

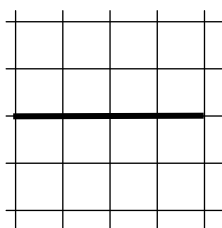


Look for points where each line passes through corners on the grid.

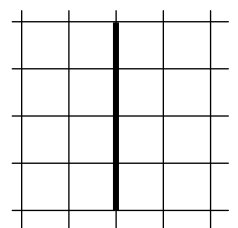
Use those points to draw a gradient triangle. Work out the **gradient** of each line.



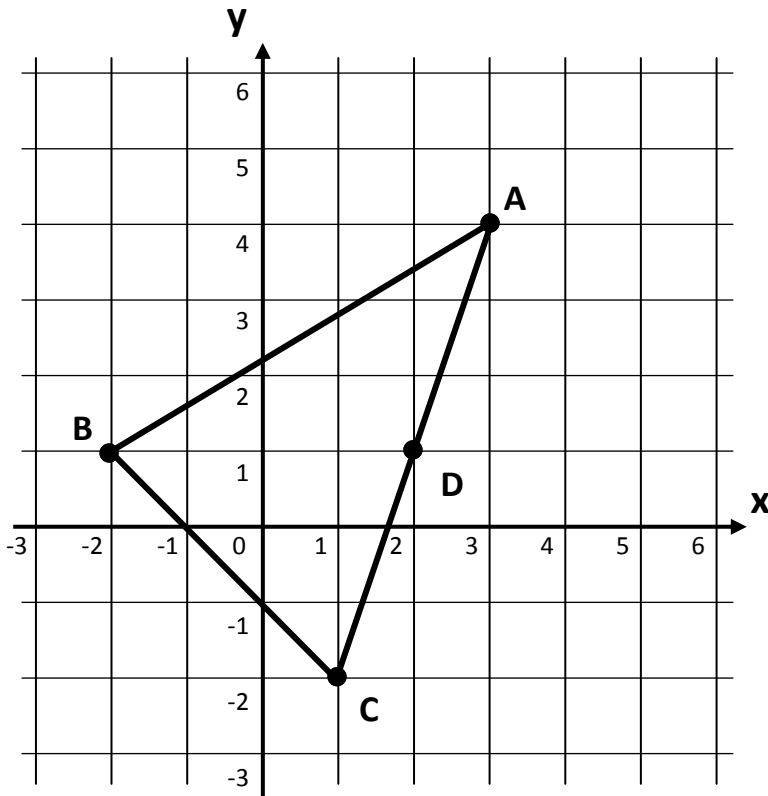
What is the **gradient** of a **horizontal** line ?



What is the **gradient** of a **vertical** line ?



Gradients



[1] Write down the **co-ordinates** of points A, B, C, and D.

[2] Work out the gradients of these lines :

AB

BC

AC

AD

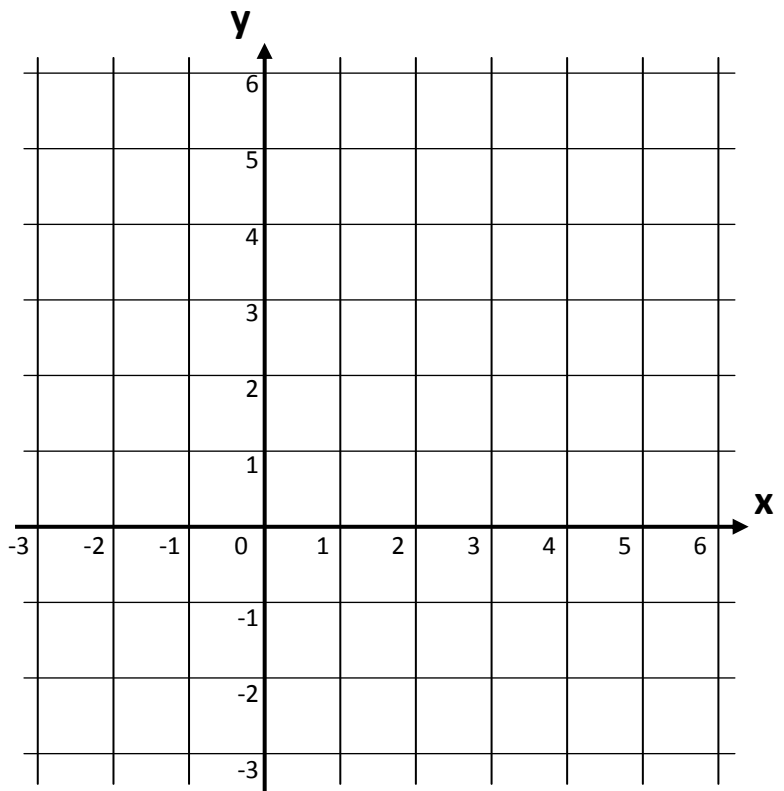
CD

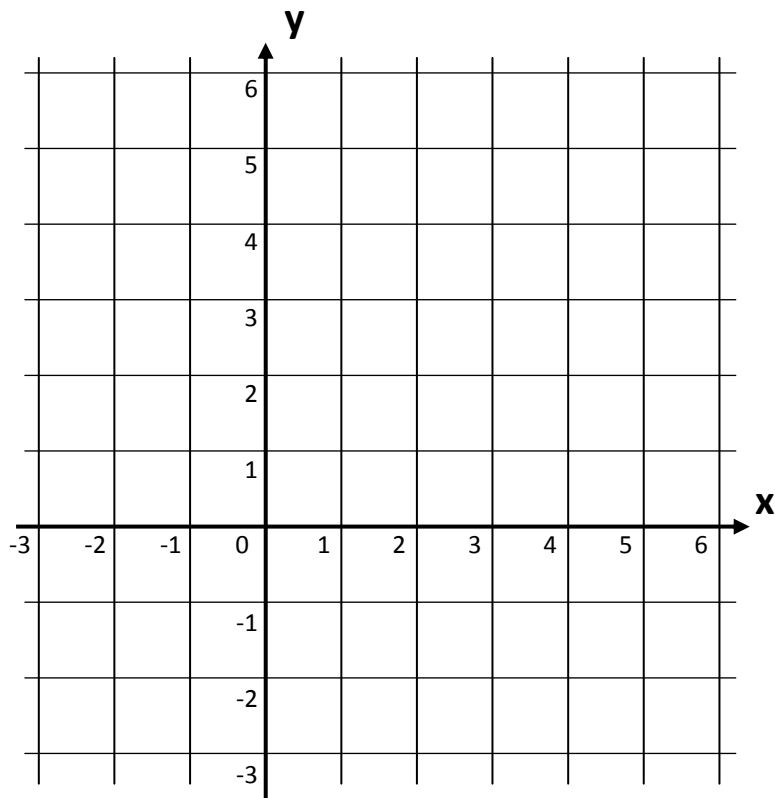
[3] Draw a line passing through the point $(0, 1)$ with gradient 2.

[4] Write down the co-ordinates of the point where the line crosses the x-axis.

[5] Draw a line parallel to the first line. Make this line pass through the point $(2, 1)$.

[6] Write down the co-ordinates of the point where the second line crosses the y axis.





X	-1	0	1	2	3
$y = 2x$					

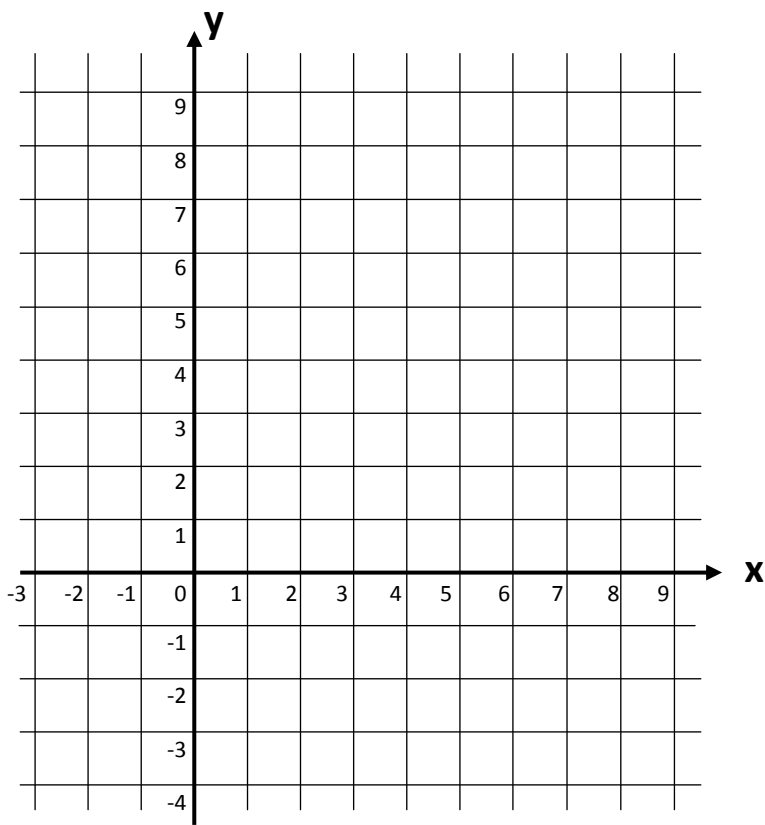
Fill in the table and use the values to draw the graph of $y = 2x$

X	-3	-2	-1	0	1
$y = 2x + 3$					

Draw the graph of $y = 2x + 3$

X	-1	0	1	2	3
$y = 2x - 1$					

Draw the graph of $y = 2x - 1$



X	-1	0	1	2	3
$y = 3x$					

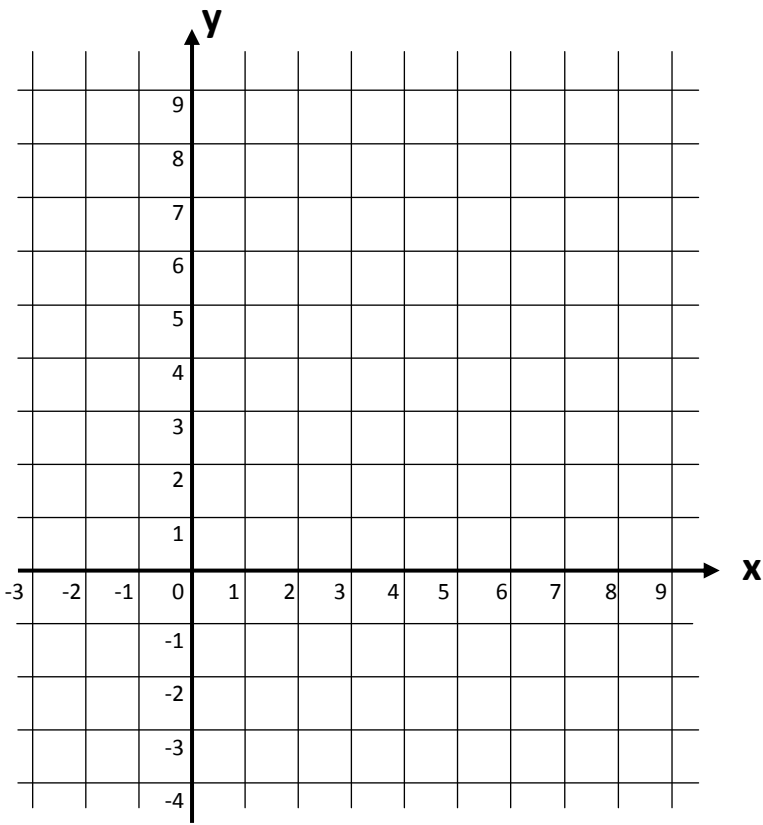
Fill in the table and use the values to draw the graph of $y = 3x$

X	-1	0	1	2	3
$y = 3x + 2$					

Draw the graph of $y = 3x + 2$

X	-1	0	1	2	3
$y = 3x - 1$					

Draw the graph of $y = 3x - 1$



Draw these lines on the grid.

$$y = 2x - 3$$

Gradient _____

y-intercept _____

$$y = -3x + 4$$

Gradient _____

y-intercept _____

Draw these lines on the grid.

$$y = x + 2$$

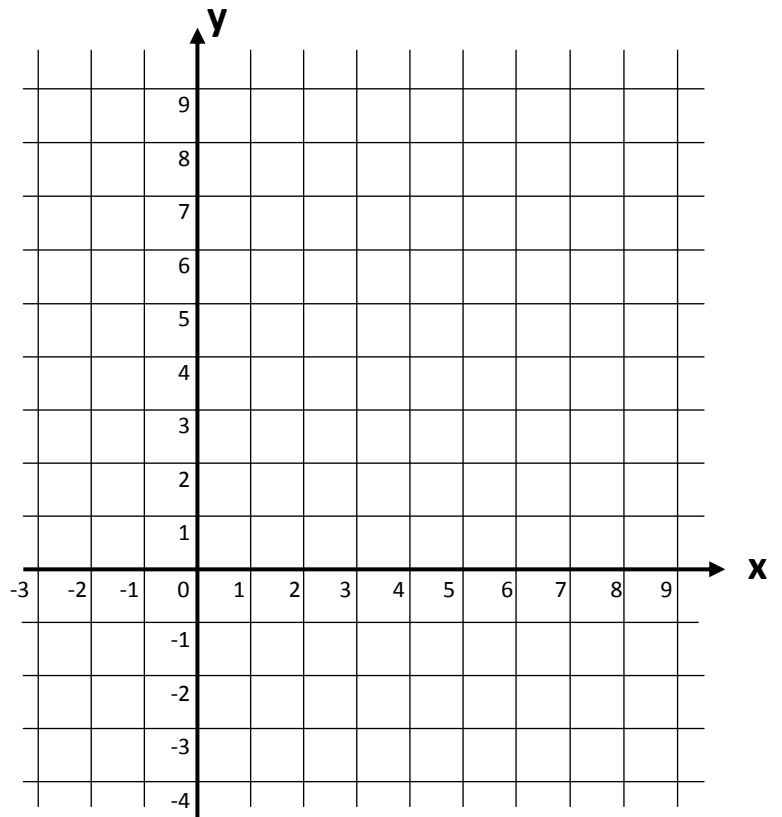
Gradient _____

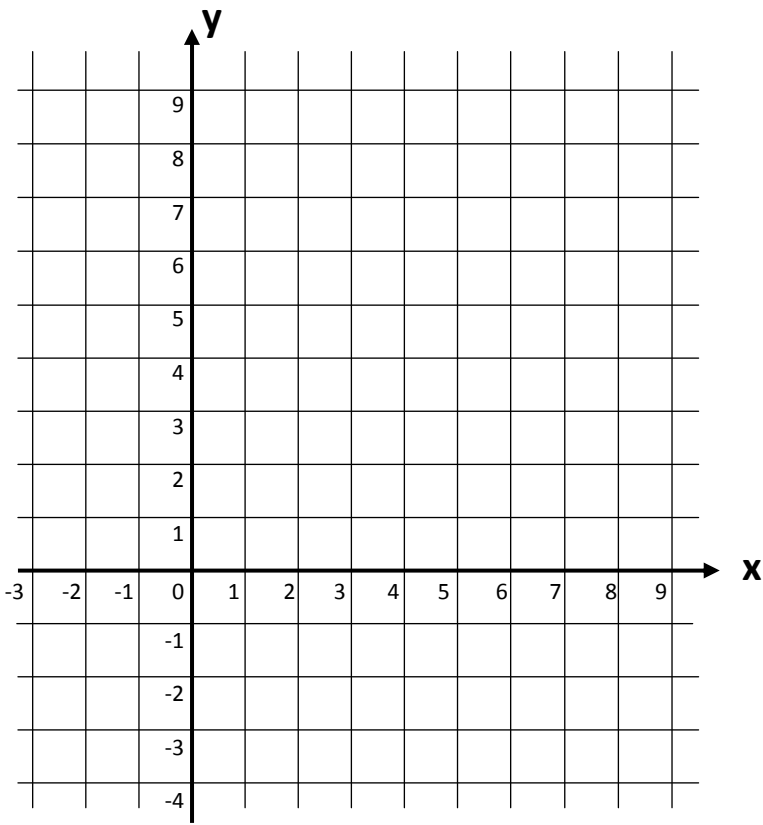
y-intercept _____

$$y = -x + 5$$

Gradient _____

y-intercept _____





Draw these lines on the grid.

Gradient 4

y-intercept 2

Equation is _____

Gradient -1

y-intercept 4

Equation is _____

Draw these lines on the grid.

Gradient -2

y-intercept 6

Equation is _____

Gradient $\frac{1}{2}$

y-intercept 3

Equation is _____

