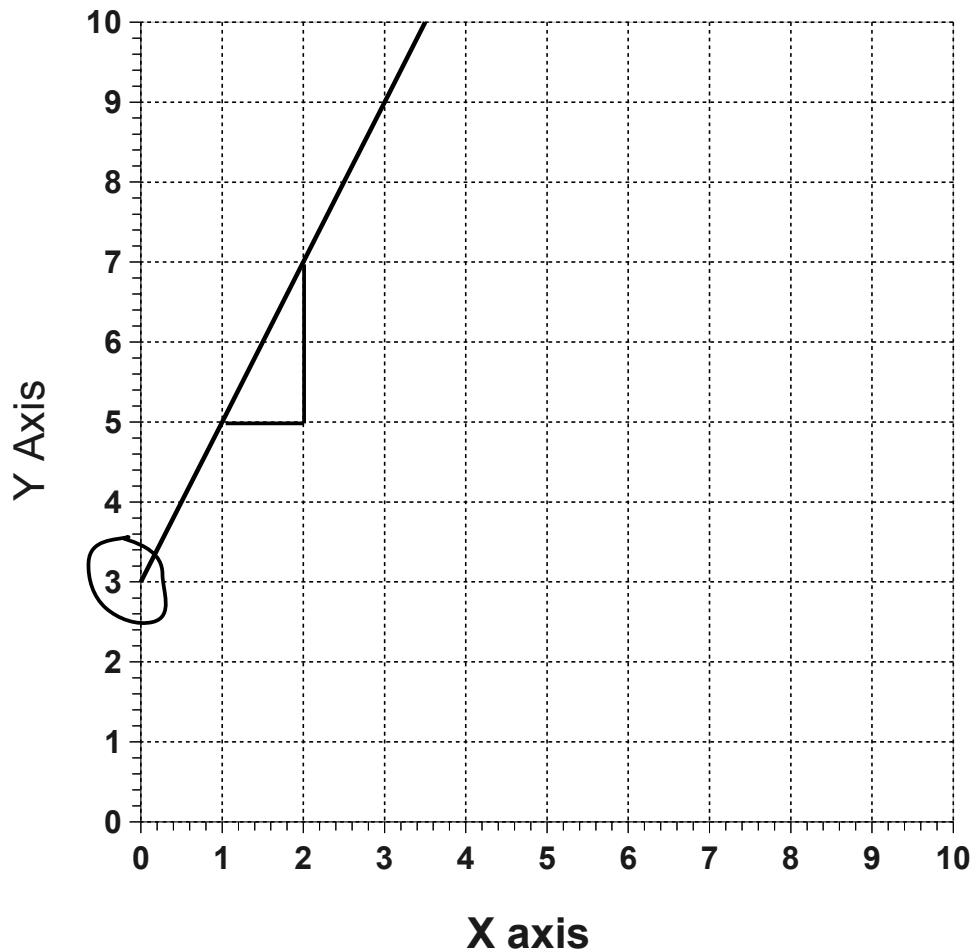


Graphs 4: Formula of a straight line

Look at the graph below...



It has Gradient 2 and Intercept 3, see where the line crosses the Y axis and the small triangle.

Read off the coordinates of various points on the line and complete this table...

X	0	1	2	3
Y	3	5		

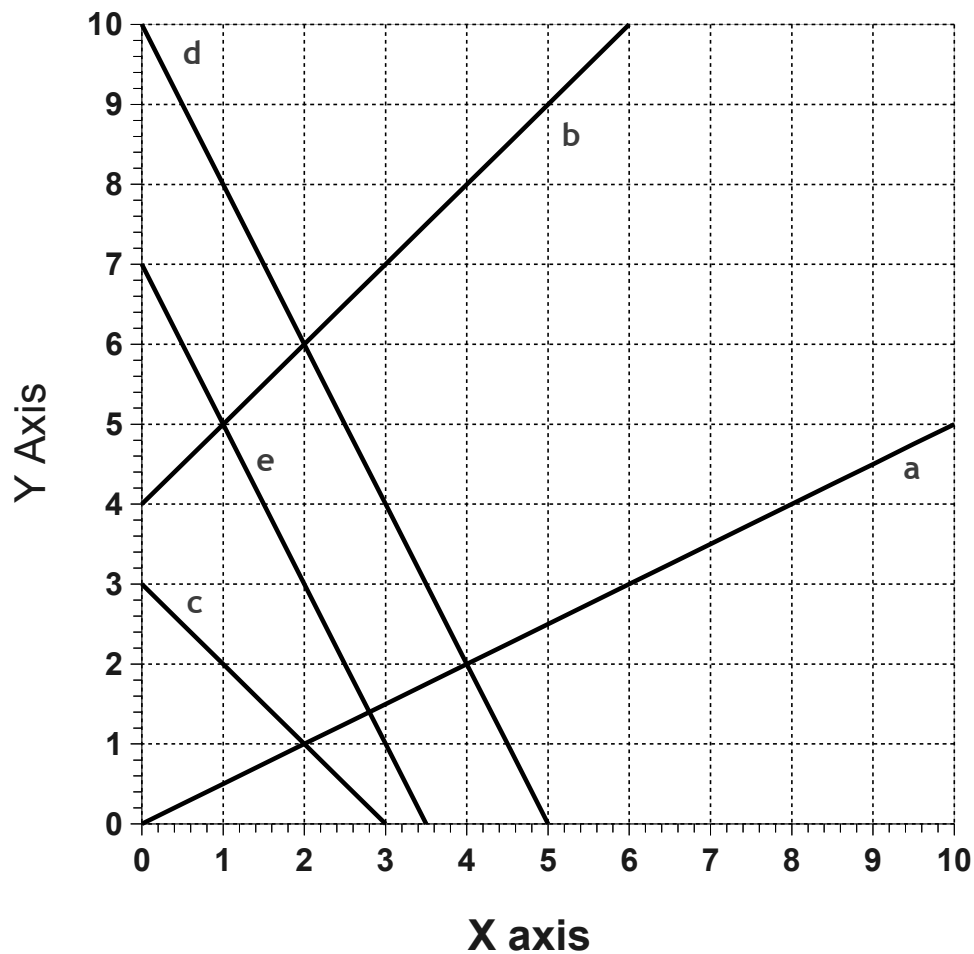
Have you noticed that

- Y increases by 2 each time, **2 is the gradient**
- When $X = 0$ then Y is 3, the **value of the intercept**
- When $X = 2.5$, then $Y = 2 \times 2.5 + 3 = 8$ which is on the line! (plot it and see)
- You can write a formula that will give you the value of Y for any value of X
- $y = 2x + 3$ in this case

Example graphs: find the formulas

Look at the lines on the graph below. For each line

- Find the Gradient (small triangle)
- Find the Intercept
- Write down the formula that describes the line
- Substitute a value of X into your formula, calculate the corresponding Y and then plot the point and see if it falls on the line...



Line	Gradient	Intercept	Formula	Value of Y when...
a				X = 6;
b				X = 4;
c				X = 1;
d				X = 3;
e	-2	7	$y = -2x + 7$	X = 2; $y = -2 \times 2 + 7 = -4 + 7 = 3$

I've completed the row for line e as an example...