

Starter

1) Fill in the blanks to factorise the expression by finding a common factor.

$$4x + 32 = _ (_ + _)$$

2) Fill in the blanks to factorise the expression into two brackets.

$$x^2 + 12x + 32 = (_ + _) (_ + _)$$

Sketching Quadratic Graphs

Today we are learning...

How to sketch and identify important points of a parabola.

I will know if I have been successful if...

I can complete a table of values.

I can plot points and join with a straight line to form a parabola.

I can identify the roots, y-intercept, axis of symmetry and turning point, labelling them clearly.



Straight Lines

So far at National 5 and in S3 we looked at sketching straight lines.

Straight lines had equations that looked a little bit like this...

$$y = 4x + 2$$

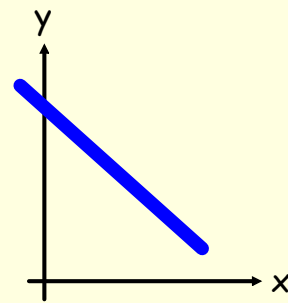
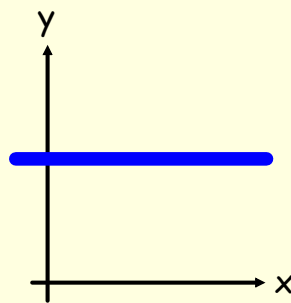
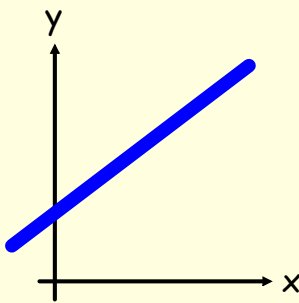
$$y = 3x - 1$$

$$y = -2x + 3$$

$$y = 3$$

When we sketched the straight lines we got something that looked a little bit like this....

Straight Lines



Now we're going to plot something slightly different...

We're going to do this one together.
Make sure you copy it out as I go along!

We are going to **sketch** the graph of

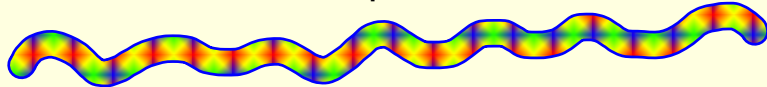
$$y = x^2 + 5x + 6$$

We're going to do this one together.
Make sure you copy it out as I go along!

We are going to **sketch** the graph of

$$y = x^2 + 5x + 6$$

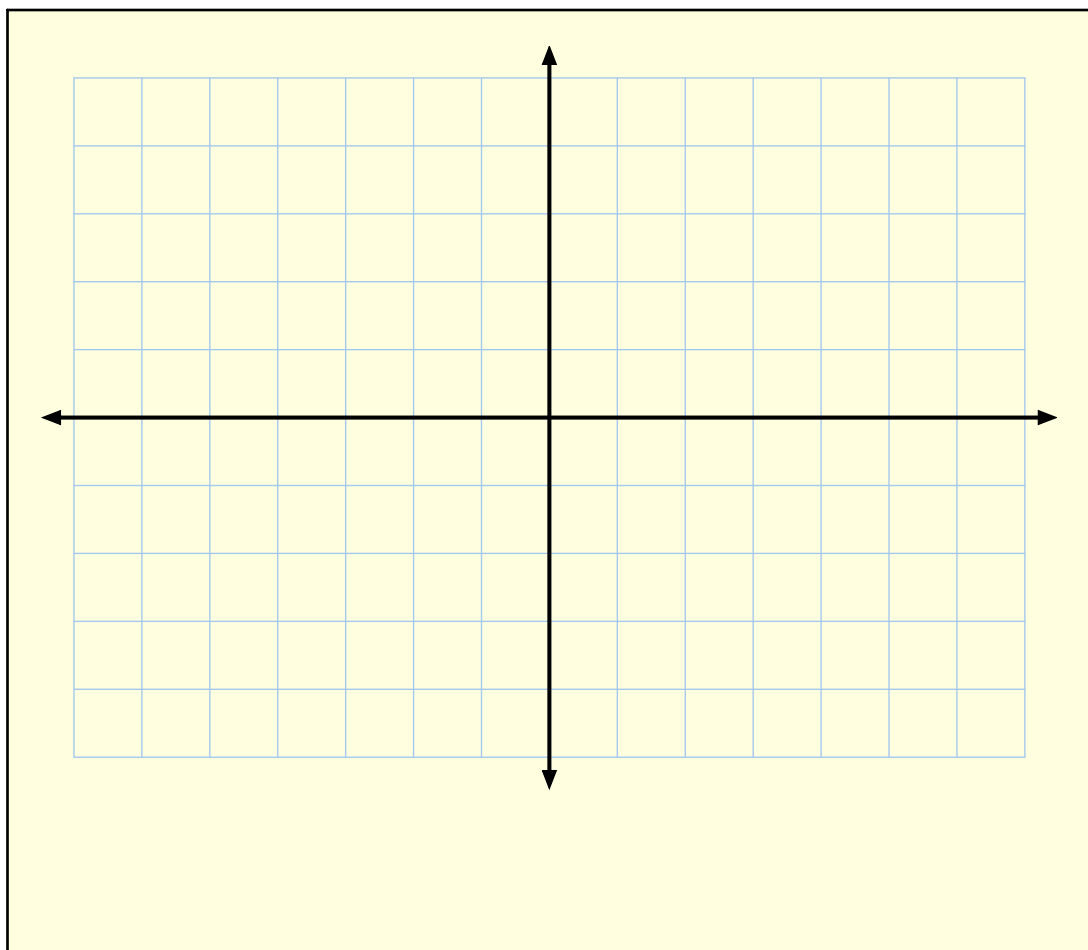
What makes this equation look different?



Just like straight lines, we're going to use a table of values to help us out at first.

$$y = x^2 + 5x + 6$$

x	-5	-4	-3	-2	-1	0
y						



Starter

Please have on your desk your sketch of the curve.

We started to label it by putting the turning point on.

We're going to finish this off first.

Open $y = x^2 + 5x + 6$ on Desmos Mr Welford

Let's sketch another one.

Sketch $y = x^2 - 2x - 8$

1) Copy and complete the table of values in your jotter.

x	-4	-2	0	2	4	6
y						

2) Plot the points on the other side of your sheet using the new grid.

3) Annotate your sketch labelling the roots, axis of symmetry, turning point and y-intercept.

Last one!

$$\text{Sketch } y = x^2 - 3x$$

1) Copy and complete the table of values in your jotter.

x	-1	0	1	2	3	4
y						

2) Plot the points on the other side of your sheet using the new grid.

3) Annotate your sketch labelling the roots, axis of symmetry, turning point and y-intercept.

Can you have a go at this one by yourself?

$$\text{Sketch } y = x^2 - 4x - 5$$

1) Copy and complete the table of values in your jotter.

x	-6	-5	-4	-3	-2	-1	0	1	2
y									

2) Plot the points on the other side of your sheet using the new grid.

3) Annotate your sketch labelling the roots, axis of symmetry, turning point and y-intercept.

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