

### Factorising quadratics

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Putting into 2 brackets

### The standard format is

$$ax^2 + bx + c = 0$$

### To finish

As well as asking you to factorise you may be asked to solve the equation.

This just means **finding the value of X** when each bracket is 0.

$$(X+3)=0 \longrightarrow X=-3$$

### The Quadratic Formula

### Use this formula on the calculator

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

### When to use the formula

If you have a quadratic that won't easily factorise

if the question mentions **decimal places** or **significant figures**

if the question asks for an **exact answer** or **surds** (this could be completing the squares)

### Completing the square

### Summary

$$x^2 + 12x - 5 = (x + 6)^2 - 41$$

↑ The SQUARE...
 ↑ ...COMPLETED

Write down a **SQUARED** bracket

And then stick a number on the end to

**COMPLETE** it

### Steps

First take out the number in front of the  $X^2$

$$\text{eg: } 2x^2 + 8x + 5 = 0 \longrightarrow 2(x^2 + 4x) = 0$$

then halve the b term and put into a squared bracket

$$\text{eg: } 2((x+2)^2 - 4)$$

then times everything



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