

Class slides

Quadratics: $\rightarrow ax^2 + bx + c$

$\rightarrow$ FACTORISATION

Ex 1: $x^2 + 7x + 12$

(✓) $ax^2 + bx + c$

$x^2 + 3x + 4x + 12$

$x(x+3) + 4(x+3)$

$(x+4)(x+3)$

$$\begin{array}{r} 12 \\ 12 \overline{) 12} \\ 2 \overline{) 6} \\ 3 \overline{) 4} = 7 \end{array}$$

$x^2 + 7x + 12$

$(x+3)(x+4)$

$$\begin{array}{r} 12 \\ 1 \overline{) 12} \\ 3 \overline{) 4} \end{array}$$

Ex 2:

$x^2 + 7x - 18$

$ax^2 + bx + c$

$x^2 - 2x + 9x - 18$

$x(x-2) + 9(x-2)$

$(x-2)(x+9)$

$$\begin{array}{r} 18 \\ 1 \overline{) 18} \\ -2 \overline{) 9} \\ 6 \overline{) 2} \\ 9 \overline{) 2} \\ 18 \overline{) 1} \end{array}$$

Q2: Now it's your turn

$x^2 - 7x + 10$

$x^2 - 5x - 2x + 10$

$x(x-5) - 2(x-5)$

$(x-2)(x-5)$

Ans: $(x-2)(x-5)$

$$\begin{array}{r} 10 \\ -5 \overline{) 2} \end{array}$$

Ex 3:

Factorise

$5x^2 + 11x + 2$

$ax^2 + bx + c$

$5x^2 + 10x + 1x + 2$

$5x(x+2) + 1(x+2)$

$(x+2)(5x+1)$

$$\begin{array}{r} 10 \\ 1 \overline{) 10} = 11 \\ 2 \overline{) 5} \\ 10 \overline{) 1} \end{array}$$

Q. Solve $5x^2 + 11x + 2$

$x =$

$(x+2)(5x+1)$

$\rightarrow x+2=0$

$\checkmark x=-2$

$5x+1=0$

$5x=-1$

$\checkmark x=-\frac{1}{5}$

Solving Quadratic Equations

Solving quadratic equations

- We can solve quadratic equations when they are written in the form $ax^2 + bx + c = 0$
- If given an unusual looking equation, try to rearrange it into this form first
- The three ways to solve a quadratic you must know are
 - Factorising
 - Completing the square
 - Quadratic formula

Solving a quadratic equation by factorising

- Factorising is a great way to solve a quadratic quickly but won't work for all quadratics
- If the numbers are simple, try factorising first
- Once factorised, set each bracket to $= 0$ and solve

