Quadratics from the roots.

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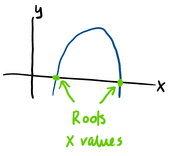
Roots are the values of x where the curve cuts the x axis



Solve the quadratic to find the values of x

$x^2 - 5x + 6 = 0$

Factors $(x - 2)(x - 3)$ $\quad -2x - 3x = +6$

multiply

x^2 → $x \times x$; 6 → 6×1, 2×3

$-3x$
$-2x$
$-5x$

Roots: Put each factor $= 0$ solve for x

$x - 2 = 0$ | $+2$ | $x = 2$ | $+2$

$x - 3 = 0$ | $+3$ | $x = 3$ | $+3$

Roots of $x^2 - 5x + 6 = 0$ are $x = 2$ and $x = 3$.

When given the roots and asked to form the quadratic

1. Put the roots equal to X.
2. Make two factors - use stabilizers
3. Multiply the two brackets
4. Answer will be a quadratic in the form $ax^2 + bx + c$

Eg 1) Form the quadratic equation when the roots are 2, 3.

① Put roots = x

$x = 2$ $\qquad$ $x = 3$

② $x = 2$

-2 | $x - 2 = 0$ | -2

Factor $(x - 2)$

$x = 3$

-3 | $x - 3 = 0$ | -3

$(x - 3)$

③ Multiply the factors

$(x - 2)(x - 3)$

$x(x - 3) - 2(x - 3)$

$x^2 - 3x - 2x + 6$

like terms

④ Quadratic in the $ax^2 + bx + c$

$x^2 - 5x + 6$

HW Pg 147

Q1 + 2

Roots	Root
2, 4	5, 1