

QUADRATIC EQUATIONS

Root Form



Root form

Has the general equation $y = a(x - d)(x - e)$

Finding our Key Properties of Interest!

Roots/x-intercepts/solutions

This is where the graph 'cuts' the x-axis.
I.e., when $y = 0$.

Already factorised for us!

$(d, 0)$ and $(e, 0)$

Y-intercept

This is where the graph 'cuts' the y-axis. I.e.,
when $x = 0$

In this case, at $y = a(0 - d)(0 - e)$
 $y = a \times -d \times -e$
 $y = a \times d \times e$

Line of symmetry

This is the vertical line which cuts the graph
exactly in half! It will lie half way between
the two roots!

I.e., half way between d and e .

Turning Point

This is where the shape of the graph 'turns'. It
always lies on the line of symmetry!

So once we find the LOS, we can plug it
straight into our equation to find the
y-coordinate

Example: $y = (x - 1)(x - 3)$

Roots/x-intercepts/solutions

❖ Factorised already!

$(x - 1)(x - 3) = 0$
 $x = 1$ or $x = 3$
 $(1, 0)$ and $(3, 0)$

Y-intercept

$c = 1 \times 1 \times 3$ so at $(0, 3)$

Line of symmetry

Halfway between the roots.
Halfway between 1 and 3 is 2!
 $x = 2$

Turning Point

$y = (2 - 1)(2 - 3)$
 $y = (1)(-1)$
 $y = -1$

So at $(2, -1)$

