Zeros & Axis of Symmetry

When we solved those equations in 1 variable, we essentially set y = 0 which results in the x-intercepts – where the graph in 2 variables crosses the x-axis

$$x^2 - 2x - 8 = 0 \text{ became } y = x^2 - 2x - 8$$

so we the graph crosses the x-axis at 4 and –2

We can find the midpoint of those solutions by the Midpoint Formula
or
from the Quadratic Formula

Find the x intercepts and the midpoint of those 2 points.

$y = x^2 + 2x - 15$ **by finding the zeros and the axis of symmetry**

Using the Quadratic Formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}; \quad ax^2 + bx + c = 0$$

or

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

the midpoint occurs when $x = -\dfrac{b}{2a}$

called the

axis of symmetry