

Topic: The general quadratic formula

Lesson: 7

Name:

The rule is used to solve quadratics of the form; $ax^2 + bx + c = 0$

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

where a , b and c are constants and $a \neq 0$.

The axis of symmetry is given by the equation; $x = \frac{-b}{2a}$

Example 1 – Your turn!

Use the general quadratic formula to solve for x , where $x^2 - 4x - 6 = 0$.

Example 2 – Your turn!

Use the general quadratic formula to solve for x , where $3x^2 + 2kx - 1 = 0$.

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Example 3 – Your turn!

Sketch the graph of $y = 3x^2 - 18x + 13$. Use the quadratic formula to calculate the x-axis intercepts. Also, find the axis of symmetry and hence the turning point.

Extension

Using the quadratic formula and completing the square, it is possible to write a general rule for the coordinates of the turning point of the graph of

$y = ax^2 + bx + c$ in terms of a , b and c .

Complete the square for $y = ax^2 + bx + c$ and write it in turning point form and hence write the coordinates of the vertex in terms of a , b and c .