

What is the
QUADRATIC formula?

Example 1:

Example 2:

Example 3:

The Quadratic Formula is another method for solving a quadratic equation. BE SURE the equation is written in standard form:

$$ax^2 + bx + c = 0$$

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

Example 1: use the Quadratic Formula to solve the equation. round your answer to the nearest hundredth, if necessary.

$$2x^2 + 7x - 9 = 0$$

Example 2: use the Quadratic Formula to solve the equation. round your answer to the nearest hundredth, if necessary.

$$4m^2 = 7m + 2$$

Example 3: use the Quadratic Formula to solve the equation. round your answer to the nearest hundredth, if necessary.

$$5w^2 + 4 = w + 6$$

The Quadratic Formula

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$$2x^2 + 7x - 9 = 0$$

$$a = 2 \quad b = 7 \quad c = -9$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ x &= \frac{-7 \pm \sqrt{7^2 - 4(2)(-9)}}{2(2)} \\ x &= \frac{-7 \pm \sqrt{121}}{4} \\ x &= \frac{-7 \pm 11}{4} \end{aligned}$$

$$\begin{aligned} x &= \frac{-7+11}{4} = 1 \\ x &= \frac{-7-11}{4} = \frac{-18}{4} = -4.5 \end{aligned}$$

Example 2: use the Quadratic Formula to solve the equation. round your answer to the nearest hundredth, if necessary.

$$4m^2 = 7m + 2$$

$$\begin{array}{r} -7m \quad -2 \\ \hline 4m^2 - 7m - 2 = 0 \end{array}$$

$$4m^2 - 7m - 2 = 0$$

$$a = 4 \quad b = -7 \quad c = -2$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ x &= \frac{7 \pm \sqrt{(-7)^2 - 4(4)(-2)}}{2(4)} \\ x &= \frac{7 \pm \sqrt{49 + 32}}{8} \\ x &= \frac{7 \pm 9}{8} \end{aligned}$$

$$\begin{aligned} x &= \frac{7+9}{8} = 2 \\ x &= \frac{7-9}{8} = -0.25 \end{aligned}$$

Example 3: use the Quadratic Formula to solve the equation. round your answer to the nearest hundredth, if necessary.

$$5w^2 + 4 = w + 6$$

$$\begin{array}{r} -w \quad -6 \\ \hline 5w^2 - w - 2 = 0 \end{array}$$

$$5w^2 - w - 2 = 0$$

$$a = 5 \quad b = -1 \quad c = -2$$

$$\begin{aligned} x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ x &= \frac{1 \pm \sqrt{(-1)^2 - 4(5)(-2)}}{2(5)} \\ x &= \frac{1 \pm \sqrt{41}}{10} \\ x &= \frac{1 \pm 6.403}{10} \end{aligned}$$

$$\begin{aligned} x &= \frac{1+6.403}{10} = 0.74 \\ x &= \frac{1-6.403}{10} = -0.54 \end{aligned}$$

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