

Using the Quadratic Formula - Guided Lesson Explanation**Explanation # 1**

We will use the quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Where $a \neq 0$.

We can use it to solve a quadratic equation ($ax^2 + bx + c = 0$).

Now we will use the quadratic formula to solve $k^2 + 30k + 125 = 0$.

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

$$k = \frac{-30 \pm \sqrt{30^2 - 4(1)(125)}}{2(1)}$$

$$k = \frac{-30 \pm \sqrt{900 - 500}}{2}$$

$$k = \frac{-30 \pm \sqrt{400}}{2}$$

$$k = \frac{-30 - \sqrt{400}}{2} \quad \text{or} \quad k = \frac{-30 + \sqrt{400}}{2}$$

$$k = \frac{-30 - 20}{2} \quad \text{or} \quad k = \frac{-30 + 20}{2}$$

$$k = -25 \quad \text{or} \quad k = -5$$

Explanation # 2

We will use the quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Where $a \neq 0$.

We can use it to solve a quadratic equation ($ax^2 + bx + c = 0$).

Now we will use the quadratic formula to solve $3x^2 - 6x - 72 = 0$.



Name _____

Date _____

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

$$x = \frac{-(-6) \pm \sqrt{-6^2 - 4(3)(72)}}{2(3)}$$

$$x = \frac{6 \pm \sqrt{-36 - 864}}{6}$$

$$x = \frac{6 \pm \sqrt{-900}}{6}$$

$$x = \frac{6 - (-30)}{6} \quad \text{or} \quad x = \frac{6 + (-30)}{6}$$

$$x = \frac{6 + 30}{6} \quad \text{or} \quad x = \frac{6 - 30}{6}$$

$$x = \frac{36}{6} \quad \text{or} \quad x = \frac{-24}{6}$$

$$x = 6 \quad \text{or} \quad x = -4$$

Explanation #3

We will use the quadratic formula is $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Where $a \neq 0$.

We can use it to solve a quadratic equation ($ax^2 + bx + c = 0$).

Step 3) Now we will use the quadratic formula to solve $x^2 - 6x + 9 = 0$.

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

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(9)}}{2(1)}$$

$$x = \frac{6 \pm \sqrt{36 - 36}}{2}$$



Name _____

Date _____

$$x = \frac{6 \pm 0}{2}$$

$$x = \frac{6 - 0}{2} \quad \text{or} \quad x = \frac{6 + 0}{2}$$

$$x = \frac{6}{2} \quad \text{or} \quad x = \frac{6}{2}$$

$$x = 3 \quad \text{or} \quad x = 3$$

