

The Quadratic Formula

By the end of the period, you will:

- Know what the Quadratic Formula is
- Know how to use the Q-F

Quadratic Formula

- There once a negative boy who was all mixed up so he went to this radical party. Because the boy was square, he lost out on 4 awesome chicks so he cried his way home when it was all over at 2 AM.

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

#1 Solve using the quadratic formula.

$$3x^2 - 7x + 2 = 0$$

$$a = 3, b = -7, c = 2$$

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

$$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(3)(2)}}{2(3)}$$

$$x = \frac{7 \pm \sqrt{49 - 24}}{6}$$

$$x = \frac{7 \pm \sqrt{25}}{6}$$

$$x = \frac{7 \pm 5}{6}$$

$$x = \frac{12}{6} \quad x = \frac{2}{6}$$

$$x = 2, \frac{1}{3}$$

#2 Solve using the quadratic formula

$$2x^2 - 4x = 5$$

$$2x^2 - 4x - 5 = 0$$

$$a = 2, b = -4, c = -5$$

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

$$x = \frac{-(-4) \pm \sqrt{(-4)^2 - 4(2)(-5)}}{2(2)}$$

$$x = \frac{4 \pm \sqrt{16 + 40}}{4}$$

$$x = \frac{4 \pm \sqrt{56}}{4}$$

$$x = \frac{4 \pm \sqrt{4 \cdot 14}}{4}$$

$$x = \frac{4 \pm 2\sqrt{14}}{4}$$

$$x = 1 \pm \frac{\sqrt{14}}{2}$$

$$x \approx 2.9$$

$$x \approx -0.9$$

Solve using the quadratic formula

3. $3m^2 - 8 = 10m$

$$m = 4, -\frac{2}{3}$$

4.

$$x^2 + 64 = 16x$$

$$x = 8$$

#3 Solve using the quadratic formula

$$3m^2 - 8 = 10m$$

$$3m^2 - 10m - 8 = 0$$

$$a = 3, b = -10, c = -8$$

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

$$m = \frac{-(-10) \pm \sqrt{(-10)^2 - 4(3)(-8)}}{2(3)}$$

$$m = \frac{10 \pm \sqrt{100 + 96}}{6}$$

$$m = \frac{10 \pm \sqrt{196}}{6}$$

$$m = \frac{10 \pm 14}{6}$$

$$m = \frac{24}{6} \quad m = -\frac{4}{6}$$

$$m = 4, -\frac{2}{3}$$

#4 Solve using the quadratic formula

$$x^2 + 64 = 16x$$

$$x^2 - 16x + 64 = 0$$

$$a = 1, b = -16, c = 64$$

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

$$x = \frac{16 \pm \sqrt{(-16)^2 - 4(1)(64)}}{2(1)}$$

$$x = \frac{16 \pm \sqrt{256 - 256}}{2}$$

$$x = \frac{16 \pm \sqrt{0}}{2}$$

$$x = 8$$