

Algebra 9-5 Solving Quadratic Equations- Day 2

Warm-Up

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

1. What is the quadratic formula? _____

When Solving if you have an x^2

2. When do we use the quadratic formula? _____

x-intercepts

3. What do our solutions represent? _____

4. When solving a quadratic, the equation must be in standard form, which means it is equal to 0.5. Before solving we must find our a, b, and c values.6. Once you have solutions, you can check your answer(s) by plugging in or
graph and see where it crosses the X-axis.

<p>7. Identify a, b, and c values for the following quadratic equation. $-x^2 + 3x = 25$</p> <p>$a = -1, b = 3, c = -25$</p> $\frac{-x^2 + 3x - 25 = 0}{}$	
<p>8. Solve $p^2 - 10p + 16 = 0$.</p> <p>$a = 1, b = -10, c = 16$</p> $p = \frac{10 \pm \sqrt{100 - 4(1)(16)}}{2(1)} = \frac{10 \pm \sqrt{36}}{2} = \frac{10 \pm 6}{2}$	
<p>Exact Solution</p> <p>* No Rounding * Leave radical if # is not a perfect square * Ex] $\frac{2 \pm \sqrt{7}}{3}$</p>	<p>Rounded Solution</p> <p>* calculate the radical use calc. * estimated value Ex] $x \approx 1.55$ $x \approx -2.2$</p>

1. Find the exact solutions for $t^2 + 5t = 3$

NO rounding!

$$t^2 + 5t - 3 = 0 \quad a=1, b=5, c=-3$$

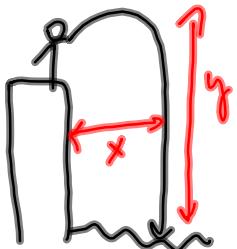
$$t = \frac{-5 \pm \sqrt{25 - 4(1)(-3)}}{2(1)} = \frac{-5 \pm \sqrt{37}}{2}$$

Leave it.

37 is not perfect square

2. The formula $y = -x^2 + 2x + 27$ represents a diver diving, where y is the meters above water and x is the meters away from the cliff.

$$y = \text{meters above H}_2\text{O}, \\ x = \text{meters away from cliff}$$



- a. How far is the diver away from the cliff when she...

1. hits the water? 6.3 meters

$$y=0$$

2. is 10 meters above the water? 5.25m

$$y=10$$

$$0 = -x^2 + 2x + 27$$

$$a = -1, b = 2, c = 27$$

$$x = \frac{-2 \pm \sqrt{4 - 4(-1)(27)}}{2(-1)}$$

$$x = \frac{-2 \pm \sqrt{112}}{-2}$$

$$\frac{-2 + \sqrt{112}}{-2} = \frac{-2 + 10.6}{-2} = -4.3$$

$$\frac{-2 - 10.6}{-2} = 6.3$$

$$10 = -x^2 + 2x + 27$$

$$0 = -x^2 + 2x + 17$$

$$a = -1, b = 2, c = 17$$

$$\frac{9-5}{4,5-8,15a,17-21}$$

$$x = \frac{-2 \pm \sqrt{4 - 4(-1)(17)}}{2(-1)} = \frac{-2 \pm \sqrt{72}}{-2}$$

$$= \frac{-2 \pm 8.5}{-2}$$

$$\frac{-2 + 8.5}{-2} = \boxed{-3.25}$$

$$\frac{-2 - 8.5}{-2} = \boxed{5.25}$$