Bell Ringer - Solve for x. Round to the nearest hundredth.

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$$-5 \quad -5$$

$$\frac{-6x^2}{-6} = \frac{-84}{-6}$$

$$x^2 = 14$$

$$\sqrt{x^2} = \sqrt{14}$$

$$x = \pm 3.74$$

Quadratic Formula

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

Formula is used to find the solutions to a quadratic function.
Remember a quadratic function is $y = ax^2 + bx + c$.

Solutions are the x-intercepts of the parabola.

To use the formula, substitute values for a, b, and c.
Note: $a \neq 0$

$b^2 - 4ac \geq 0$ to have real solutions Why?

cannot take the square root of a negative.

Remember to the use the quadratic formula, the quadratic function (equation) must be in standard form.

Standard Form: $ax^2 + bx + c = 0$

** watch the negatives **

Solve the quadratic function using the quadratic formula.

1) $2x^2 - 3x = 8$

Solve the quadratic function using the quadratic formula.

1) $2x^2 - 3x = 8$ S.F. $2x^2 - 3x - 8 = 0$

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

$$\frac{3+\sqrt{9+64}}{4} \quad \text{and} \quad \frac{3-\sqrt{9+64}}{4}$$

$$\frac{3+\sqrt{73}}{4} \quad \text{and} \quad \frac{3-\sqrt{73}}{4}$$

$x = 2.89$ and $-1.39$

Solve the quadratic function using the quadratic formula.

2) $-14x = -2x^2 + 36$

Solve the quadratic function using the quadratic formula.

2) $-14x = -2x^2 + 36$ S.F. $2x^2 - 14x - 36 = 0$

$$\frac{-(-14) \pm \sqrt{(-14)^2 - 4(2)(-36)}}{2(2)}$$

$$\frac{14 + \sqrt{196 + 288}}{4} \quad \text{and} \quad \frac{14 - \sqrt{196 + 288}}{4}$$

$$\frac{14 + \sqrt{484}}{4} \quad \text{and} \quad \frac{14 - \sqrt{484}}{4}$$

$$\frac{14+22}{4} \quad \text{and} \quad \frac{14-22}{4}$$

$x = 9$ and $-2$