Read and Try: Quadratic Formula Name _____

Earlier in the semester we used completing the square to solve quadratic formulas. An alternative, which you have learned in other math classes, is the quadratic formula. Read through the following examples to refresh your memory, and then use the quadratic formula to solve the three equations at the end. Put in simplest radical form and also in decimal form, rounding to the nearest hundredth.

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

Ex 1: $0 = x^2 - 6x + 8$

$a=1$, $b=-6$, $c=8$

$$\frac{+6 \pm \sqrt{(-6)^2-4\cdot1\cdot8}}{2\cdot1} \quad \frac{6 \pm \sqrt{4}}{2} = \frac{6+2}{2}, \frac{6-2}{2} \quad x = 4, 2$$

Ex 2: $7x^2 - 2x = 3$

Get one side $= 0$

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

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

$$\frac{+2 \pm \sqrt{(-2)^2-4(7)(-3)}}{2\cdot7} \quad \frac{2 \pm \sqrt{88}}{14} = \frac{2 \pm \sqrt{4\cdot22}}{14} = \frac{2 \pm 2\sqrt{22}}{14} = \frac{1 \pm \sqrt{22}}{7}$$ or $.81, -.53$

Note: These are the x-intercepts

Ex: $2x^2 = 4x + 6$

$2x^2-4x-6$

$a=2$, $b=-4$, $c=-6$

$$\frac{+4 \pm \sqrt{(-4)^2-4\cdot2\cdot-6}}{2\cdot2} \quad \frac{4 \pm \sqrt{64}}{4} = \frac{4+8}{4}, \frac{4-8}{4} = 3, -1$$

Ex: $x^2 + 5x + 10 = 0$

$a=1$, $b=5$, $c=10$

$$\frac{-5 \pm \sqrt{(5)^2-4\cdot1\cdot10}}{2\cdot1} \quad \frac{-5 \pm \sqrt{-15}}{2} = \frac{-5 \pm i\sqrt{15}}{2}$$

Not a real soln, so if we were graphing we'd have no x-intercepts!

Now you try. Check your solutions with those at the side of the page.

1. $0 = 2x^2 - 2x - 12$

2. $3x^2 + 4x = 2$

3. $0 = 3x^2 + 5x + 12$

1. $x = 3, -2$

2. $\frac{-2 \pm \sqrt{10}}{3}$ $x = .39, -1.72$

3. $\frac{-5 \pm \sqrt{-39}}{6}$