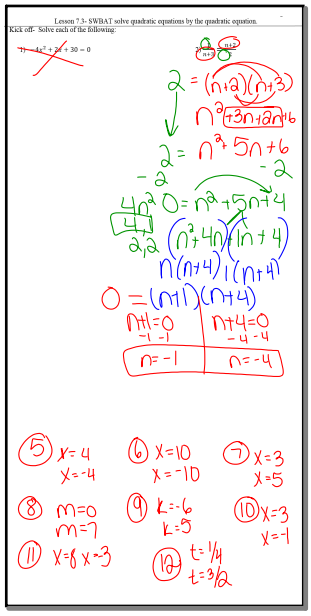
Kickoff-

Fill out the rubric for participation and hand it to me to get our worksheet!

(Then do the kickoff!)



To solve a quadratic equation that does not have rational roots (cannot be factored) we must use the quadratic formula!

Use when you cannot factor!

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

Standard form for the quadratic equation: $ax^2 + bx + c = 0$

Quadratic equations can have different nature (types) of roots. They are:

Rational- can factor

Irrational- has a square root in the answer.

Imaginary- has a negative under the square root.

Steps to Solving with the Quadratic Formula:
1) Put the equation in standard form. equals zero.
2) Label a, b and c.
3) Substitute a, b and c into the quadratic formula. ****(use parenthesis)
4) Simplify! (using PEMDAS!)

Example:
1) $x^2 - 10x + 13 = 0$

$a = 1$
$b = -10$
$c = 13$

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

$x = \frac{-(-10) \pm \sqrt{(-10)^2-4(1)(13)}}{2(1)}$

$\frac{10 \pm \sqrt{48}}{2}$ ·····> $\sqrt{16}\cdot\sqrt{3}$ $4\sqrt{3}$

$\frac{10 \pm 4\sqrt{3}}{2} = \frac{5 \pm 2\sqrt{3}}{1}$

Irrational bc it has a square root!

Directions: Use the quadratic equation to solve for the roots.

2) $x^2 + 6x = -4$

$+4 \quad +4$

$x^2+6x+4=0$

$a=1$
$b=6$
$c=4$

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

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

$\frac{-6 \pm \sqrt{20}}{2}$ ·····> $\sqrt{4}\cdot\sqrt{5}$ $2\sqrt{5}$

Irrational answer

$\frac{-6 \pm 2\sqrt{5}}{2} = \frac{-3 \pm \sqrt{5}}{1}$

3) $2x^2 - 5 = -3x$

4) $2x^2 + 5x = 12$

5) $x^2 - 6x + 7 = 0$

6) $x^2 - 8 = 0$

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

$a = 1$

$b = 0$

$c = -8$

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

$$\frac{-(0) \pm \sqrt{(0)^2-4(1)(-8)}}{2(1)}$$

$$\frac{0 \pm \sqrt{32}}{2} = \cdots\cdots > \sqrt{16}\cdot\sqrt{2}$$

$$4\sqrt{2}$$

Irrational b/c of square root!

$$\frac{0 \pm 4\sqrt{2}}{2} = 2\sqrt{2}$$

8) $x^2 + 10x = 4$

9) $x^2 - 10 = 0$