Warmup:

Solve each equation by square roots

$6r^2 - 9 = 87$

$+9 \quad +9$

$\frac{6r^2}{6} = \frac{96}{6}$

$r^2 = 16$

$r = \pm 4$

$2(a-6)^2 - 45 = 53$

$+45 \quad +45$

$\frac{2(a-6)^2}{2} = \frac{98}{2}$

$(a-6)^2 = 49$

$a - 6 = \pm 7$

$a = 6 \pm 7$

$a = 13$

$a = -1$

1) $8k^2 - 11k + 4 = 0$

$\left\{\frac{11 + i\sqrt{7}}{16}, \frac{11 - i\sqrt{7}}{16}\right\}$

2) $5a^2 + 1 = 0$

$\left\{\frac{i\sqrt{5}}{5}, -\frac{i\sqrt{5}}{5}\right\}$

$a=5 \quad b=0 \quad c=1$

$\frac{\pm i\sqrt{20}}{10}$

$\sqrt{20} = 2\sqrt{5}$

$\frac{\pm i\sqrt{5}}{5}$

$\frac{\pm 2i\sqrt{5}}{10}$

3) $8b^2 - 9b - 4 = -12$

$\left\{\frac{9 + 5i\sqrt{7}}{16}, \frac{9 - 5i\sqrt{7}}{16}\right\}$

$\frac{9 \pm 5i\sqrt{7}}{16}$

4) $6x^2 - x = -11$

$\left\{\frac{1 + i\sqrt{263}}{12}, \frac{1 - i\sqrt{263}}{12}\right\}$

$\frac{1 \pm i\sqrt{263}}{12}$

5) $8a^2 + 9a = -11$

$\left\{\frac{-9+i\sqrt{271}}{16}, \frac{-9-i\sqrt{271}}{16}\right\}$

$\frac{-9 \pm i\sqrt{271}}{16}$

6) $8x^2 + 11 = 9x$

$\left\{\frac{9+i\sqrt{271}}{16}, \frac{9-i\sqrt{271}}{16}\right\}$

7) $p^2 + 7p + 16 = 10p + 8$

$\left\{\frac{3+i\sqrt{23}}{2}, \frac{3-i\sqrt{23}}{2}\right\}$

$\frac{3 \pm i\sqrt{23}}{2}$

8) $11b^2 + 10 = -1 - 8b + 5b^2$

$\left\{\frac{-4+5i\sqrt{2}}{6}, \frac{-4-5i\sqrt{2}}{6}\right\}$

$\frac{-4 \pm 5i\sqrt{2}}{6}$

Quadratic Tic Tac Toe

Quiz #5

Quadratic Formula

E.Q.:

How do we solve quadratic equations using the completing the square method?

Multiply each of the following using the FOIL method:

$(x + 1)^2$

$(x - 2)^2$

$(x + 3)^2$

$(x - 5)^2$

Completing the Square Method:

$$x^2 + 8x + 2 = 0$$

Solve by completing the square:

$$x^2 - 4x + 10 = 42$$

To use Completing the square to solve a quadratic ($ax^2 + Bx + C$) you need to ...

1. Move the **constant** (c) over to one side of the equation
2. Factor out the **leading coefficient** (if needed) of the ax^2 and bx
3. Find the number that would make the trinomial a **Trinomial Square**
4. Add that number to the other side (whatever you do to one side of an equation you need to do to the other.
   - If the a leading coefficient had been factored out you need to **multiply** the number by what was factored out and add new number to the other side
5. **Factor** the trinomial square

Solve by completing the square:

$$v^2 - 10v - 28 = 0$$

You try:

$$b^2 + 20b - 44 = 0$$

$$x^2 - 20x - 16 = 5$$

$$a^2 + 8a + 5 = -2$$

HW #11:
Solving Quadratic Equations Using Completing the Square