Math 2 Name: _____

Solving Quadratic Equations Worksheet #4

Solve the following quadratics with complex numbers:

1. $2x^2 - 6x + 5 = 0$

$$\frac{6}{2(2)} \pm \frac{\sqrt{(-6)^2-4(2)(5)}}{2(2)}$$

$$\frac{6}{4} \pm \frac{\sqrt{36-40}}{4}$$

$$\frac{3}{2} \pm \frac{\sqrt{-4}}{4}$$

$$\frac{3}{2} \pm \frac{2i}{4}$$

$$\frac{3}{2} \pm \frac{1}{2}i$$

$$\frac{6 \pm 2i}{4}$$

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

2. $8x^2 - 4x + 5 = 0$

$$\frac{4}{2(8)} \pm \frac{\sqrt{(-4)^2-4(8)(5)}}{2(8)}$$

$$\frac{4}{16} \pm \frac{\sqrt{16-160}}{16}$$

$$\frac{4}{16} \pm \frac{\sqrt{-144}}{16}$$

$$\frac{4}{16} \pm \frac{12}{16}i$$

$$\frac{1}{4} \pm \frac{3}{4}i$$

$$\frac{4 \pm 12i}{16}$$

$$\frac{1 \pm 3i}{4}$$

3. $-5x^2 + 12x - 8 = 0$

4. $-x^2 + 4x - 5 = 0$

$$x^2 - 4x + 5 = 0$$

$$x^2 - 4x + 4 = -5 + 4$$

$$(x-2)^2 = -1$$

$$x - 2 = \pm\sqrt{-1}$$

$$x = 2 \pm i$$