Bellwork Alg 2A Monday, March 27, 2017

Find all EXACT Complex solutions (real and imaginary) for each quadratic equation. You must use each of the following methods at least once: Factoring, Square Roots, Quadratic Formula, and Completing the Square.

1. $2x^2 - 6x = 56$

2. $x^2 - 4x = -13$

3. $2(x-8)^2 + 13 = 63$

4. $4x^2 - 4x + 19 = 0$

5. $x^2 + 10x - 24 = 0$

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ANSWERS

Find all EXACT Complex solutions (real and imaginary) for each quadratic equation. You must use each of the following methods at least once: Factoring, Square Roots, Quadratic Formula, and Completing the Square.

1. $\frac{2x^2}{2} - \frac{6x}{2} = \frac{56}{2}$ FACTOR

$x^2 - 3x = 28$

$x^2 - 3x - 28 = 0$

$(x-7)(x+4) = 0$

$x = -4, 7$

-28, -7, 4, -3

2. $x^2 - 4x = -13$ complete the Square

$x^2 - 4x + 4 = -13 + 4$

$(x-2)^2 = -9$

$x - 2 = \pm 3i$

$+2 \quad +2$

$x = 2 \pm 3i$

3. $2(x-8)^2 + 13 = 63$ Sq Roots

$-13 \quad -13$

$\frac{2(x-8)^2}{2} = \frac{50}{2}$

$(x-8)^2 = 25$

$x - 8 = \pm 5$

$x = 13, 3$

4. $4x^2 - 4x + 19 = 0$ Quad Formula

$b^2 - 4ac = -288$

$x = \frac{4 \pm \sqrt{-288}}{8} \rightarrow -144.2$

$x = \frac{4 \pm 12i\sqrt{2}}{8}$

$x = \frac{1 \pm 3i\sqrt{2}}{2}$

5. $x^2 + 10x - 24 = 0$ FACTOR or Compl. Sq

$(x+12)(x-2) = 0$

$x = -12, 2$

-24, 12, -2, +10