

Bellwork Hon Alg 2 Thursday, December 1, 2016

Find ALL Exact Complex Solutions (that means Real and Imaginary) by either Factoring, Completing the Square, Quadratic Formula, or Square Roots. You must use each method at least once.

1. $x^2 + 7x - 60 = 0$

2. $18x^2 + 73 = 17$

3. $9x^2 - 6x + 29 = 0$

4. $x^2 - 10x + 13 = 0$

5. $2(x + 7)^2 - 5 = 31$

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Answers

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1. $x^2 + 7x - 60 = 0$ **FACTOR**

$$\begin{array}{r} -60 \\ +12 \quad -5 \\ 7 \end{array}$$

$$(x+12)(x-5) = 0$$

$$x = -12, 5$$

2. $18x^2 + 73 = 17$ **SQ ROOTS**

$$\frac{18x^2}{18} = \frac{-56}{18}$$

$$\sqrt{x^2} = \frac{-56}{18} = \sqrt{\frac{-28}{9}} \rightarrow 4.7$$

$$x = \pm \frac{2i\sqrt{7}}{3}$$

3. $9x^2 - 6x + 29 = 0$

Quad Formula

$$b^2 - 4ac = -1008$$

$$= \frac{6 \pm \sqrt{-1008}}{18} \rightarrow 144.7$$

$$= \frac{6 \pm 12i\sqrt{7}}{18} = \frac{1 \pm 2i\sqrt{7}}{3}$$

4. $x^2 - 10x + 13 = 0$ **complete the sq**

$$x^2 - 10x + 25 = -13 + 25$$

$$\sqrt{(x-5)^2} = \sqrt{12}$$

$$x-5 = \pm 2\sqrt{3}$$

$$x = 5 \pm 2\sqrt{3}$$

5. $2(x+7)^2 - 5 = 31$ **SQ ROOTS**

$$+5 \quad +5$$

$$\frac{2(x+7)^2}{2} = \frac{36}{2}$$

$$\sqrt{(x+7)^2} = \sqrt{18}$$

$$x+7 = \pm 3\sqrt{2}$$

$$x = -7 \pm 3\sqrt{2}$$