Bellwork Alg 2A Wednesday, March 22, 2017

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. $x^4 + 7x^2 - 60 = 0$
2. $18x^2 + 73 = 17$
3. $9x^2 - 6x + 29 = 0$
4. $x^2 - 10x + 13 = 0$
5. $2(x+7)^2 - 5 = 31$
6. $x^2 + 2x - 35 = 0$

Bellwork Alg 2A Wednesday, March 22, 2017 ANSWERS

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. $x^4 + 7x^2 = 60$

FACTOR

$x^4 + 7x^2 - 60 = 0$

$(x^2+12)(x^2-5)=0$

$x^2+12=0$ $\quad$ $x^2-5=0$

$\sqrt{x^2}=\sqrt{-12}=\sqrt{-4\cdot3}$ $\quad$ $\sqrt{x^2}=\sqrt{5}$

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

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

SQ ROOTS

$18x^2+73=17$

$-73 \quad -73$

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

$\sqrt{x^2} = \sqrt{\frac{-28}{9}} = \frac{\sqrt{-4\cdot7}}{\sqrt{9}}$

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

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

QUAD FORMULA

$b^2-4ac = -1008$

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

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

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

QUAD FORMULA

$b^2-4ac = 48$

$x = \frac{10 \pm \sqrt{48}}{2} \rightarrow 16.3$

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

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

SQ ROOTS

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

$\sqrt{(x+7)^2} = \sqrt{18} \rightarrow 9.2$

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

$-7 \quad -7$

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

6. $x^2 + 2x - 35 = 0$

FACTOR

$(x+7)(x-5)=0$

-35, 7, -5, 2

$x = -7, 5$