Advanced Algebra
6.4 Worksheet

Name Answers
Period _____

Solve Each Equation. Give exact answers and state any multiplicity.

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

$(x^2-4)(x^2-1)=0$

$x^2-4=0$ $\quad x^2-1=0$

$+4\ +4$ $\quad +1\ +1$

$x^2=4$ $\quad x^2=1$

$\sqrt{x^2}=\sqrt{4}$ $\quad \sqrt{x^2}=\sqrt{1}$

2. $x^4 - 23x^2 = 50$

1. $x = \pm 2$ and ± 1

2. _____

3. $-14 = x^4 - 9x^2$

4. $x^4 + 13x^2 = -36$

3. _____

4. _____

5. $x^4 - 12x^2 + 11 = 0$

6. $x^4 - 8x^2 + 16 = 0$

5. _____

6. _____

7. $x^4 - 36 = 0$

8. $9x^4 = 49$

7. _____

$9x^4 - 49 = 0$

$(3x^2-7)(3x^2+7)=0$

8. $\pm\sqrt{7/3}$ and $\pm i\sqrt{7/3}$

$3x^2-7=0$ $\quad 3x^2+7=0$

$+7\ +7$ $\quad -7\ -7$

$\frac{3x^2}{3}=\frac{7}{3}$ $\quad \frac{3x^2}{3}=\frac{-7}{3}$

$x^2 = 7/3$ $\quad x^2 = -7/3$

$x = \pm\sqrt{7/3}$ $\quad x = \pm i\sqrt{7/3}$

9. $x^3 = 64$

10. $8x^4 + x = 0$

$x(8x^3 + 1) = 0$

$x(2x+1)(4x^2-2x+1) = 0$

$x = 0$ $\quad 2x + 1 = 0$ $\quad \frac{2 \pm \sqrt{(-2)^2 - 4(4)(1)}}{2(4)}$

$-1 \quad -1$

$\frac{2x}{2} = \frac{-1}{2}$

10. $x = 0, -\frac{1}{2}$, and $\frac{1 \pm i\sqrt{3}}{4}$

11. $x^3 + 27 = 0$

12. $125 = 8x^3$ $\quad \frac{2 \pm \sqrt{-12}}{8}$

$\frac{2 \pm 2i\sqrt{3}}{8}$

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

9. _____

11. _____

12. _____