Pre-Calculus Name_____

5.1 CA #3 - Operations on Polynomials

Date_____ Period____

Solve each equation using your new factoring abilities! Find ALL solutions. (hint: Use the quadratic formula if the quadratic expression does not factor).

1) $x^3 + 7x^2 + 10x = 0$

2) $x^3 - x^2 - 6x = 0$

3) $x^3 + 8x^2 + 17x = 0$

4) $x^3 + 4x^2 + 8x = 0$

5) $x^3 + x^2 + 4x + 4 = 0$

6) $x^3 + 4x^2 - 3x - 12 = 0$

7) $x^4 + 5x^2 - 24 = 0$

8) $x^4 - x^2 - 56 = 0$

9) $x^6 + 5x^4 - 4x^2 - 20 = 0$

10) $x^3 - 3x^2 - x + 3 = 0$

Answers to 5.1 CA #3 - Operations on Polynomials (ID: 3)

1) Factors to: $x(x+5)(x+2)=0$
   Roots: $\{0, -5, -2\}$
2) Factors to: $x(x-3)(x+2)=0$
   Roots: $\{0, 3, -2\}$
3) Factors to: $x(x^2+8x+17)=0$
   Roots: $\{0, -4+i, -4-i\}$
4) Factors to: $x(x^2+4x+8)=0$
   Roots: $\{0, -2+2i, -2-2i\}$
5) Factors to: $(x+1)(x^2+4)=0$
   Roots: $\{-1, 2i, -2i\}$
6) Factors to: $(x+4)(x^2-3)=0$
   Roots: $\{-4, \sqrt{3}, -\sqrt{3}\}$
7) Factors to: $(x^2-3)(x^2+8)=0$
   Roots: $\{\sqrt{3}, -\sqrt{3}, 2i\sqrt{2}, -2i\sqrt{2}\}$
8) Factors to: $(x^2+7)(x^2-8)=0$
   Roots: $\{i\sqrt{7}, -i\sqrt{7}, 2\sqrt{2}, -2\sqrt{2}\}$
9) Factors to: $(x^2+5)(x^2-2)(x^2+2)=0$
   Roots: $\{i\sqrt{5}, -i\sqrt{5}, \sqrt{2}, -\sqrt{2}, i\sqrt{2}, -i\sqrt{2}\}$
10) Factors to: $(x-3)(x-1)(x+1)=0$
    Roots: $\{3, 1, -1\}$