

## 5.1 CA #2 - Operations on Polynomials

Date \_\_\_\_\_ Period \_\_\_\_\_

**Name the degree and leading coefficient**

1)  $-7n^2 - 6n^6 - 7n^5 + 1$

2)  $8r^2 + 2 - 3r + 6r^3 - 5r^4$

**Simplify each expression.**

3)  $(7b + 8 + 7b^2) + (3b^3 + 4) - (5 + 6b^2)$

**Find each product.**

4)  $(8n + 2)(2n^2 + 7n - 1)$

5)  $(8x - 6)^2$

**Factor each completely.**

6)  $x^2 + 16$

7)  $16v^2 - 1$

8)  $21x^6 - 78x^3 - 135$

9)  $32uv - 12u - 40v + 15$

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

10)  $x^3 + 7x^2 + 12x = 0$

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

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

13)  $x^4 + 7x^2 - 8 = 0$

14)  $x^4 - 11x^2 + 28 = 0$

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

## Answers to 5.1 CA #2 - Operations on Polynomials (ID: 2)

- 1) Degree: 6    LC: -6    2) Degree: 4    LC: -5    3)  $3b^3 + b^2 + 7b + 7$   
4)  $16n^3 + 60n^2 + 6n - 2$     5)  $64x^2 - 96x + 36$     6) Not factorable  
7)  $(4v + 1)(4v - 1)$     8)  $3(7x^3 + 9)(x^3 - 5)$     9)  $(4u - 5)(8v - 3)$   
10) Factors to:  $x(x + 4)(x + 3) = 0$   
    Roots:  $\{0, -4, -3\}$   
11) Factors to:  $x(x^2 + 2x + 5) = 0$   
    Roots:  $\{0, -1 + 2i, -1 - 2i\}$   
12) Factors to:  $(x + 2)(x^2 + 4) = 0$   
    Roots:  $\{-2, 2i, -2i\}$   
13) Factors to:  $(x^2 + 8)(x - 1)(x + 1) = 0$   
    Roots:  $\{2i\sqrt{2}, -2i\sqrt{2}, 1, -1\}$   
14) Factors to:  $(x^2 - 7)(x - 2)(x + 2) = 0$   
    Roots:  $\{\sqrt{7}, -\sqrt{7}, 2, -2\}$   
15) Factors to:  $x(x + 3)(x^2 + 1) = 0$   
    Roots:  $\{0, -3, i, -i\}$