Unit 7 Study Guide

Name the following polynomials according to the **degree** and the **number of terms**.

1. $3x^4 - 8x + 1$ 4th Degree trinomial

2. $7x^2$ quadratic monomial

3. $5y^2 - 3y$ quadratic binomial

4. 11 constant monomial

Add or Subtract the following polynomials.

5. $(2x^3 - 4x^2 + 7x - 10) + (4x^3 - 2x + 8)$

$6x^2 - 4x^2 + 5x - 2$

6. $(2x^5 - 2x^3 + 9x) - (3x^5 - 7x^4 + 2x^3 - 4x + 1)$

$2x^5 - 2x^3 + 9x - 3x^5 + 7x^4 - 2x^3 + 4x - 1$

$-x^5 + 7x^4 - 4x^3 + 13x - 1$

7. $4x^2(3x^2 - 1x - 2) - (-5x^2 + x - 7)$

$12x^4 - 4x^3 - 8x^2 + 5x^2 - x + 7$

$12x^4 - 4x^3 - 3x^2 - x + 7$

Multiply the following expressions. You may need to use the distributive property, FOIL, or a special product pattern. You decide!!

8. $(x + 5)(x - 3)$ (FOIL)

$x^2 - 3x + 5x - 15$

$x^2 + 2x - 15$

9. $(3x + 2)(2x - 1)$ (FOIL)

$6x^2 - 3x + 4x - 2$

$6x^2 + x - 2$

10. $(x + 2)(x^2 - 3x - 7)$

$x^3 - 3x^2 - 7x + 2x^2 - 6x - 14$

$x^3 - x^2 - 13x - 14$

11. $(x - 2)(x + 2)$

$x^2 - 4$

12. $(x + 6)^2$

$x^2 + 12x + 36$

13. $(2x - 5)^2$

$4x^2 - 20x + 25$

Factor out the GCF of each expression

14. $9a^3 + 15a^2$

$3a^2(3a+5)$

15. $10x^3 + 14x^2 - 2x$

$2xy(5x^4y^3 + 7x^2y^7 - 1)$

16. $18y^3 + 27y$

$9y^3(2+3y^5)$

17. $-5x + 25x^2 - 15x^3$

$-5x(1 - 5x^6 + 3x^2)$

Factor.

18. $x^2 + 2x - 3$

$(x+3)(x-1)$

19. $x^2 + 3x - 4$

$x^2 + 3x - 4$

$(x+4)(x-1)$

20. $x^2 - 4x - 5$

$x^2 - 4x - 5$

$(x-5)(x+1)$

21. $x^2 - 3x - 28$

$-7 \cdot 4 = -28$, $-7 + 4 = -3$

$(x-7)(x+4)$

★ FACTOR OUT GCF first! ★

22. $x^3 - 2x^2 + x$

$x(x^2 - 2x + 1)$ $\quad -1 \cdot -1 = 1$, $-1 + -1 = -2$

$x(x-1)(x-1)$

23. $2x^2 - 6x - 36$

$2(x^2 - 3x - 18)$ $\quad -6 \cdot 3 = -18$, $-6 + 3 = -3$

$2(x-6)(x+3)$