Name _____ Date _____

Practice Set 6.4
Polynomials in Several Variables

Evaluate each polynomial for $x = 2$ and $y = -3$.

1. $x^2 - 3xy + y^2$ 1. _____

2. $x^3y - 5xy + 1$ 2. _____

In exercises 3-5, (a) determine the coefficient of each term, (b) the degree of each term, and (c) the degree of the polynomial.

3. $4a^3b^2 - 3a^2b + 4ab^5$ 3a. _____

b. _____

c. _____

4. $5a^4b^3 + 2a^3b - a^2b^3 + 3ab^5 + b^6$ 4a. _____

b. _____

c. _____

5. $13x^5 + 3xy^6 - 5x^2y^5 + x^3y^7$ 5a. _____

b. _____

c. _____

Perform the indicated operations.

6. $\left(6x^2 - 3xy + 4y^2\right) + \left(5x^2 - 6xy - 3y^2\right)$ 6. _____

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7. $(-3x^2y + xy + 6) + (2x^2y - 5xy - 11)$ 7. _____

8. Add $(5x^2y^2 + 3xy^2 + 7y^2)$ and $(-6x^2y^2 - 4xy^2 - 2y^2)$ 8. _____

9. $\left(14a^3 + 3a^2b - 5ab^3 + 3b^4\right) - \left(8a^3 - 5a^2b + 2ab^3 - 3b^4\right)$ 9. _____

10. $(x^3 - y^3) - (-2x^3 - 2x^2y + 3xy^2 + 4y^3)$ 10. _____

11. Subtract $(2a^2b^4 - 5ab^2 + 3ab)$ from $(3a^2b^4 + 3ab^2 + ab)$ 11. _____

12. $(4x^2y)(3xy)$ 12. _____

13. $(-5x^3y^4)(-6x^4y^2)$ 13. _____

14. $3ab^2(6a^3b^2 - 4ab)$ 14. _____

15. $(3x - 4y)^2$ 15. _____

16. $(8x + 5y)(2x - y)$ 16. _____

17. $4x^3y\left(3x^2 - 2xy + 5x^3y^4\right)$ 17. _____

18. $\left(7x^2 - 3y\right)\left(x^2 + y\right)$ 18. _____

19. $(2x + 5y)(2x - 5y)$ 19. _____

20. $(x + y + 3)(x - y - 3)$ 20. _____