Section 5.4: POLYNOMIALS IN SEVERAL VARIABLES

When you are done with your homework you should be able to...

 π Evaluate polynomials in several variables
 π Understand the vocabulary of polynomials in two variables
 π Add and subtract polynomials in several variables
 π Multiply polynomials in several variables

WARM-UP:

Evaluate the polynomial:

$x^3 y + 2xy^2 + 5x - 2; \; x = -2 \text{ and } y = 3$

EVALUATING A POLYNOMIAL IN SEVERAL VARIABLES

1. _____ the given value for each _____.

2. Perform the resulting _____ using the _____

   of _____.

DESCRIBING POLYNOMIALS IN TWO VARIABLES

In general, a _____ in _____ _____, ____

and ____, contains the _____ of one or more _____ in

the form _____. The constant, _____, is the _____.

The _____, _____ and _____, represent _____

numbers. The _____ of the _____ _____

is _____.

Example 1: Determine the coefficient of each term, the degree of each term, and the degree of the polynomial.

$$8xy^4 - 17x^5 y^3 + 4x^2 y - 9y^3 + 7$$

ADDING AND SUBTRACTING POLYNOMIALS IN SEVERAL VARIABLES

_____ in _____ variables are added by

_____ _____ _____.

Example 2: Add or subtract.

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

b. $\left(7x^2 y + 5xy + 13\right) + \left(-3x^2 y + 6xy + 4\right)$

MULTIPLYING POLYNOMIALS IN SEVERAL VARIABLES

The _____ of _____ _____ the basis of _____

_____. _____ can be done _____

by _____ _____ and _____

_____ on _____ with the _____

_____.

Example 3: Multiply.

a. $\left(5xy^3\right)\left(-10x^2y^4\right)$

c. $\left(x-2y^4\right)\left(x+2y^4\right)$

b. $-x^7y^2\left(x^2+7xy-4\right)$

d. $\left(x^2-y\right)^2$