MATH 0482
Chapter 1.6 Polynomials and Their Operations

POLYNOMIAL : ALGEBRAIC EXPRESSION
REAL NUMBER COEFFICIENTS
VARIABLE FACTORS WITH WHOLE NUMBER EXPONENTS

$3x^2$ $7xy + 5$ $\frac{3}{2}x^3 + 3x^2 - \frac{1}{2}x + 1$

DEGREE OF A TERM : EXPONENT OF VARIABLE / SUM OF EXPONENTS

$3x^2$ $6x^2y$ $7a^2b^3$ 8 $2x$

DEGREE OF A POLYNOMIAL : LARGEST DEGRE OF ALL TERMS

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

$6x^2y - 5xy^3 + 7$

$\frac{1}{2}x + \frac{5}{4}$

STANDARD FORM : $a_N x^N + a_{N-1}x^{N-1} + \cdots + a_1 x + a_0$

WRITE IN STANDARD FORM.

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

MONOMIAL: ONE TERM

BINOMIAL: TWO TERMS

TRINOMIAL: THREE TERMS

POLYNOMIAL: MANY TERMS

CONSTANT: DEGREE 0

LINEAR: DEGREE 1

QUADRATIC: DEGREE 2

CUBIC: DEGREE 3

N^{TH} DEGREE: DEGREE N

STATE THE TYPE OF POLYNOMIAL AND GIVE THE LEADING COEFFICIENT.

$-x^2 + 4x + 25$

ADDING AND SUBTRACTING POLYNOMIALS

$9x^2 + (x^2 - 5)$

$(3x^2y^2 - 4xy + 9) + (2x^2y^2 - 6xy - 7)$

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

Multiplying Polynomials

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

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

$(5x-2)^3$

Dividing Polynomials

$$\frac{24x^7y^5}{8x^3y^2}$$

$$\frac{-5x^4+25x^3-15x^2}{5x^2}$$

$$\frac{x^3+3x^2-8x-4}{x-2}$$

$$\frac{6x^2 - 5x + 3}{2x - 1}$$

$$\frac{27x^3 + 64}{3x + 4}$$

$$\frac{3x^4-2x^3+6x^2+23x-7}{x^2-2x+5}$$