


## Inter Alg & Trig: 5.2 - Introduction to Polynomials

monomial: a constant, variable, or a product of constants and variables

Coefficient

Degree


$$3x^2$$

<u>Monomial</u>	<u>Degree</u>
$3x^2$	2
$-6x^4$	4
$12x^2y^6$	8
$10x^2y^7$	9
$xy^2z^3$	6
$2^3x^2$	2

$$2x$$

$$2$$

$$0$$

$$1$$

$$0$$

no degree

**Polynomial: one-variable and in general**

Binomial : two monomials

$$x + 2$$

$$3x^2 - 5y$$

Trinomial : three monomials

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

Note: NON-EX of a monomial

$$\frac{1}{x}$$

$$x + 2$$

## Degree of a polynomial

Polynomial

Degree

$$x^2 + 5x + 6$$

2

2    1    0

$$3x^2 + 7y^4 - 16z$$

4

2    4    1

Writing a polynomial in descending (or ascending order)

EX:  $6x^2 - 7x^3 + 12x^4 - 13x + 5$

Descending

$$12x^4 - 7x^3 + 6x^2 - 13x + 5$$

Ascending

$$5 - 13x + 6x^2 - 7x^3 + 12x^4$$

## Combining like terms & write in descending order

p 395

### 5.3 Adding and Subtracting Polynomials

p 406

$$\text{EX: } (2x^2 - 3x + 5) + (6x^2 + 5x - 13)$$

$$8x^2 + 2x - 8$$

$$(12x^3 - 3x + 5) + (6x^3 + 7x^2 - 20)$$

$$18x^3 + 7x^2 - 3x - 15$$



## 5.4 Exponent Rules and Multiplying Monomials

EX:  $x^3 = x \cdot x \cdot x$

$$x^2 \cdot x^3 = (x \cdot x)(x \cdot x \cdot x) = x^5$$

$$2^3 \cdot 2^4 = 2^7$$

$$(w^3 \cdot w^4 = w^7)$$

$$2^3 \cdot 3^2 = 2^3 \cdot 3^2 = 72$$

EX:

$$2(3x + 4) = 6x + 8$$

$$2x^2y(3xy^2 + 4y) =$$

$$6x^3y^3 + 8x^2y^2$$

## Product Rule for Exponents

$$a^m a^n = a^{m+n}$$

## Raising a Power to a Power

$$(a^m)^n = a^{mn}$$

p 417

## 5.5 Multiplying Polynomials; Special Products

### Multiplying a Polynomial by a Monomial

### Binomial Multiplication

#### Multiplying $23 \cdot 15$

$$\begin{array}{r} 23 \\ \cdot 15 \\ \hline \end{array}$$

compare with

$$\begin{array}{r} x+4 \\ x+3 \\ \hline \end{array}$$

## **Multiply Two Binomials**

$$(x+4)(x+3)$$

## **Special Products**

### **Conjugates**

### **Squaring a Binomial**

## 5.6 Exponent Rules and Dividing Polynomials

### Quotient Rule

$$\frac{x^6}{x^2}$$

### Dividing a Polynomial by a Monomial

## **Exponent Rules (p 444)**

**p 445**

**p 454**

**p 458**