

Inter Alg & Trig: 5.2 - Introduction to Polynomials

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

EX: 2

x

$3x^2y^3z$

$\frac{3}{4}x^4$

NONEX:

$\frac{1}{x}$

$x + 2$

Coefficient

Degree

EX:

$3x^2$

Degree

2

$6x^2y^3$

5

$-12xy^4z^2$

7

$$2^3 x^2$$

2

4

0

0

no degree

Polynomial: one-variable and in general

Binomial : two monomials

EX: $x + 2$

$$3x^2 - 5x$$

Trinomial three monomials

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

$$x^2 y^4 - 6x^2 z^3 + 4w$$

Degree of a polynomial

Q:	Polynomial	Deg
	$x^2 + \sqrt{x} + 6$ 2 1 0	2
	$3x^2y + 4y^6 - 7xz^4$ 3 6 5	6
	$x^4y^5 - x^3y^8 + z^6w^7$ 9 11 13	13

Writing a polynomial in descending (or ascending order)

Ex:

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

Descending order

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

Ascending order

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

Combining like terms & write in descending order

p 395

5.3 Adding and Subtracting Polynomials

Ex: $(3x^2 - 5x + 5) + (4x^2 + 2x - 10)$

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

$(6x^3 - 3x^2 + 7) + (4x^3 - 10x + 5)$

$$10x^3 - 3x^2 - 10x + 12$$

5.4 Exponent Rules and Multiplying Monomials

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