

Name: _____

Date: _____

Notes

Algebra Section 9.1

Pages 554-559

Goal: “You will add and subtract polynomials”



Vocabulary

Monomial: a _____, _____, or the _____ of a number and one or more variable with _____
_____.

Degree of a Monomial: The _____ of the _____ of the variables in the _____.

Monomial	Degree
10	
$3x$	
$\frac{1}{2}ab^2$	
$-1.8m^5$	

Not a Monomial	Reason
$5 + x$	
$\frac{2}{n}$	
4^a	
x^{-1}	

Ex: Monomial? Yes or no? Why? Why not? If yes, what is the degree?

a. 17

b. $\frac{x^3}{2}$

c. $\frac{5}{x}$

d. $4x^2y^5z$

e. $9 + x$

f. 7^b

g. y^{-3}

h. $\frac{3}{4}ab$

Polynomial: a _____ or a sum of _____. Each is called a _____.

Binomial: A polynomial with _____.

Trinomial: A polynomial with _____.

Degree of a Polynomial: The _____ of its _____.

Parts of a polynomial: Note- the polynomial is written so that the exponents of a variable decrease from left to right.

A diagram showing the polynomial $2x^3 + x^2 - 5x + 12$. Three blue arrows point to specific parts of the polynomial: one from the label 'leading coefficient' to the '2' in $2x^3$, one from the label 'degree' to the '3' in x^3 , and one from the label 'constant' to the '12'.

Rewrite a polynomial:

Rewrite the polynomial so that the exponents of a variable decrease from left to right. Then state the leading coefficient, degree, and constant.

$$15x - x^3 + 3$$

When more than one variable is used, polynomials should be written in descending order, based on the variable that comes first alphabetically.

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

Rewrite the following polynomials in descending order, based on the variable that comes first alphabetically.

1. $15x - x^3 + 3$

2. $-xy + x^4y^2$

3. $-3ac^4 + a^2c^2 - a^3c$

4. $3b^3 - 4b^4 + b^2$

5. $7x^2y + 4xy^3 - 3x^3y^2$

Ex: Classify each polynomial as a monomial, binomial, trinomial or polynomial, then find the degree of each.

1. $2 + 4x - 7x^2$

2. $5xy^2$

3. $6a^2c + 5ac^5$

4. $5x^3 - 4xy^2 - 2x + 6$

5. $7b^3c + 4bc^4$

6. $6n^4 + 3n + 7x^8 - 4n^3$

Adding Polynomials - Same as adding like terms.

Ex: $(2x^3 - 5x^2 + x) + (2x^2 + x^3 - 1)$

Ex: $(3x^2 + x - 6) + (x^2 + 4x + 10)$

Ex: $(-2x^2 + 3x - x^3) + (3x^2 + x^3 - 12)$

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

Subtracting Polynomials - Distribute the negative first.

Ex: $(4n^2 + 5) - (-2n^2 + 2n - 4)$

Ex: $(4x^2 - 3x + 5) - (3x^2 - x - 8)$

Ex: $(2c^2 - 8) - (3c^2 - 4c + 1)$

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

CHALLENGE

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