

Unit 7:  
Classifying Polynomials  
Add/Subtract Polynomials



What's a Monomial? *a #, variable, or the product of a number and one or more variables with whole number exponents.*

Circle the Monomials Below...

$10$        $-3x$        $\frac{-3x}{y}$        $15x^{-15}$        $5x^2y^{10}$        $\frac{3}{4}xy$        $3x+y$

Degree of a Monomial  
*sum of the exponents of the variables in the monomial.*

Find the Degree of the Monomial...

$6x^3$        $4p$        $-10$        $-3z^2$        $12x^2y$        $3x^3y^5$   
**3**      **1**      **0**      **2**      **3**      **8**

What's a Polynomial?  
*monomial or sum of monomials*

Circle the Polynomials Below...

$4x^2$        ~~$4x^{-12}$~~        $4x^2+10$        $4x^2+3x+10$        ~~$5x^2+1$~~

Monomial	Binomial	Trinomial	Polynomial
<i>1 term</i>	<i>2 terms</i>	<i>3 terms</i>	<i>4 or more terms</i>

Identify the Following Expressions by the Number of Terms and their degree.

$4x^2+10$  *binomial, 2*  
 $4x^2+3x+10$  *trinomial, 2*  
 $4x^2$  *monomial, 2*  
 $15$  *monomial, 0*

Based on the Degree of the Polynomial, they get a special name!

Degree	Name
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 0	<input type="checkbox"/> Constant
<input type="checkbox"/> 1	<input type="checkbox"/> Linear
<input type="checkbox"/> 2	<input type="checkbox"/> Quadratic
<input type="checkbox"/> 3	<input type="checkbox"/> Cubic
<input type="checkbox"/> 4	<input type="checkbox"/> Quartic

Classify the Polynomials by Degree:

$4x^2 + 3x + 10$  2, quadratic  
 $15$  0, constant  
 $3x^3$  3, cubic  
 $3x^3 - 4x^4$  4, quartic  
 $15x - 1$  1, linear

What's Standard Form?

$ax^2 + bx + c$   
 decreasing exponents

Are they in Standard Form?

$4x^2 + 3x + 10$  yes  
 $15$  yes  
 $3x^3$  yes  
 $3x^3 - 4x^4$  NO  $-4x^4 + 3x^3$   
 $15x - 1$  yes

**Like Terms:** A "term" is a monomial. Like terms must have the same variables with the same corresponding degree. Circle the like terms from each group of terms.

a.  $3x, 4y, 3y$

b.  $3x^2, 4y, 3y^2$   
none

c.  $3x, \frac{1}{2}yx, 3xy$

d.  $3x^2, 4y^2, 3y^2, 4x$

e.  $x, 10x, -3x$

f.  $2xy^2, 4y^2, 3x^2y, -2y^2x$

Example 1

$$\cancel{2x^3} - 5x^2 + x + (\cancel{2x^2} + \boxed{x^3} - 1)$$
$$3x^3 - 3x^2 + x - 1$$

Example 2

$$(8x^2 - 4x + 3) + (5x^2 + 7x)$$
$$13x^2 + 3x + 3$$

Example 3

$$(5x^2 + x - 7) - (3x^2 + 2x - 5)$$
$$5x^2 + x - 7 + (-3x^2 - 2x + 5)$$
$$2x^2 - 1x - 2$$

Example 4

$$(x^2 - 9x - 11) - (6x^2 + 2x + 7)$$
$$(x^2 - 9x - 11) + (-6x^2 - 2x - 7)$$
$$-5x^2 - 11x - 18$$