Name: _____ Block: _____

KEY 1/6/20

Unit 7: Quadratic Expressions

Learning Goal 7.1 – Operations with Polynomials

In this unit, you will learn how to do the following:

Learning Target #1: Operations with Polynomials

- Classify polynomials by degree and terms
- Add polynomials
- Subtract polynomials
- Multiply polynomials
- Apply operations of polynomials to real world problems

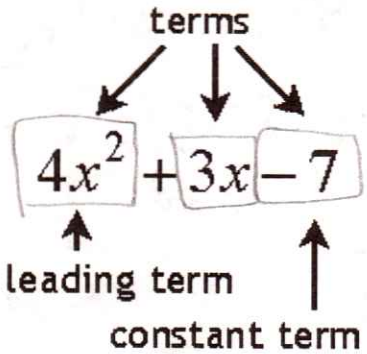
Mon, 1/6 *Day 1:* Review Expectations, Classify Polynomials	Tues, 1/7 *Day 2:* Adding & Subtracting Polynomials	Wed, 1/8 *Day 3:* Multiplying Polynomials	Thurs, 1/9 *Day 4:* Applications with Polynomials	Fri, 1/10 *Day 5:* **Learning Goal 7.1 Assessment**
Mon, 1/13	Tues, 1/14	Wed, 1/15	Thurs, 1/16	Fri, 1/17
Mon, 1/20	Tues, 1/21			

Tutoring Times

	Monday	Tuesday	Wednesday	Thursday	Friday
AM	None	Mr. Sims 7:45-8:15 Room 9223		Mr. Sims 7:45-8:15 Room 9223	
PM					None

Day 1 – Classifying Polynomials

A **POLYNOMIAL** is a mathematical expression consisting of terms, which can include a constant, variable, or product of a constant and variable, that are connected together using addition or subtraction. Variables must have exponents raised to whole number exponents.



Number of Terms: 3

Terms: $4x^2$, $3x$, -7

Coefficient(s): 4, 3 (# in front of variable)

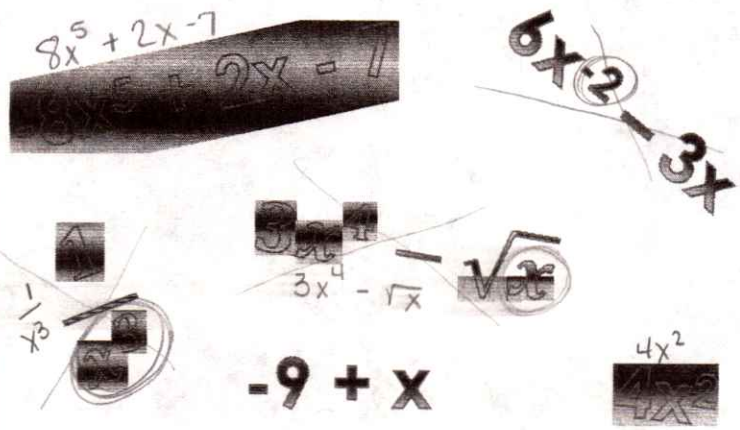
Constant(s): -7 (# w/o variable)

terms = separated by + & −

Polynomials CANNOT contain:

- Radicals
- Fractional exponents
- Negative exponents
- No variables in the denominator

Cross off all expressions that are NOT polynomials:



Polynomials are typically written in **STANDARD FORM**, which means the terms are arranged in decreasing order from the largest exponent to the smallest exponent. When you write polynomials in standard form, you can easily identify the degree of the polynomial. The **DEGREE** is the largest exponent of the variable in the polynomial.

Rewrite each polynomial in standard form. Then identify the degree of the polynomial:

a. $5x - 6x^2 - 4$
2nd 1st 3rd

Standard Form: $-6x^2 + 5x - 4$

Degree: 2

b. $-7x + 8x^2 - 2 - 8x^2$

$-7x - 2$
1st 2nd

Standard Form: $-7x - 2$

Degree: 1

c. $6(x - 1) - 4(3x^2) - x^2$

$6x - 6 - 12x^2 - x^2$

$6x - 6 - 13x^2$

Standard Form: $-13x^2 + 6x - 6$

Degree: 2

Classifying Polynomials

Polynomials are classified by **DEGREE** and **NUMBER OF TERMS:**

Degree: highest expont

# of terms

Degree	Name	Example
0	Constant	8
1	Linear	$2x+3$
2	quadratic	x^2+5
3	Cubic	x^3
4	quartic	$3x^4$

Terms	Name	Example
1	monomial	$3x^4$
2	binomial	$3x^4+3$
3	trinomial	x^2+2x+9
4+	polynomial	$2x^3+x^2-3x+7$

Complete the table below. Simplify the expressions or put in standard form if necessary.

Polynomial	Degree	# of Terms	Classification
8x	1	1	Linear monomial
$x^2 - 4$	2	2	quadratic binomial
10	Ø	1	Constant monomial
$-24 + 3x - x^2$ $-x^2+3x-24$	2	3	quadratic trinomial
$5x^3 - 12 + 8$ $5x^3-4$	3	2	Cubic binomial
$7x - 9x + 1$ $-2x+1$	1	2	Linear binomial
$4x^2 - 5x^3 - 4 + 5x - 1$ $-5x^3+4x^2+5x-5$	3	4	Cubic polynomial
$2x + 3 - 7x^2 + 4x + 7x^2$ $6x+3$	1	2	Linear binomial

Algebra 1 | Unit 7: Quadratic Expressions | Practice

Day 1 – Classifying Polynomials **Name:** _____

Practice Assignment **Date:** _____ **Block:** _____

1. *Simplify and put each polynomial into standard form (if necessary). Then classify the polynomials by degree and number of terms.*

	Standard Form	***Classification***	
a. $4x^2 - 5x$	$4x^2 - 5x$	quadratic	binomial
b. $x + 2$	$x + 2$	Linear	binomial
c. 12	12	Constant	monomial
d. $5x^2 - 5x + 1$	$5x^2 - 5x + 1$	quadratic	trinomial
e. $2x + 3x^2 - 4x$	$3x^2 - 2x$	quadratic	binomial
f. $4x^3 + 1 - 2x$	$4x^3 - 2x + 1$	Cubic	trinomial
g. $x^2 - 2x + 9 - x^2$	$-2x + 9$	Linear	binomial
h. $4x^3 - 2x + 2x^2 - 2x + 5$	$4x^3 + 2x^2 - 4x + 5$	Cubic	Polynomial

2. *Create a polynomial that meets the following requirements:* *answers will vary

a. Quadratic Trinomial with coefficients of -2 and 3: $-2x^2 + 3x - 1$

b. Quadratic Monomial with a negative coefficient: $-8x^2$

c. Polynomial of degree 3 with three terms: $4x^3 - 2x + 8$

d. Polynomial with a constant of 7 and two terms: $9x^5 + 7$

e. Cubic binomial with leading coefficient of 4: $4x^3 - 8x$