Pre-Algebra

Aim: What are polynomial expressions and how do we classify them? How do we add and subtract polynomial expressions?

Do Now: Simplify the following algebraic expressions.

A. $2x + 5x$ B. $5x - 3 + 10x - 2$ C. $9x^4 + 3x^3 + x^2$

Polynomials

Recall that a **Term** is a number, a variable or a product of numbers and variables.

Examples of Terms:_____

Polynomial:

Monomial:

Binomial:

Trinomial:

Degree of a Polynomial:

Standard Form of a Polynomial:

Classifying Polynomials

Polynomial	Most Specific Name	Standard Form	Degree	Leading Coefficient
$2x + 5$				
$3x^2$				
$1 - 5x + 4x^2$				
$7 - 3x^3$				
$1 - 7x^3 - 5x + 2x^4$				
$3x^3 + 5 - 4x^5$				
-9				
$12x^3 + 7x - x^3 + 1$				

Reminder: A polynomial expression contains monomial expressions whose variables are raised to **whole number exponents**.

Determine if the following terms are monomials.

Term	Is it a monomial?	Explain your reasoning.
$-3bc$		
$\frac{1}{2}x^3$		
$6k^{-2}$		
$\frac{7}{y^3}$		

Adding and Subtracting Polynomial Expressions

Adding Polynomials: Combine like terms. Express all answers in standard form.

1. $3r^2 - 6 + 7r + 5r^2 - r$

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

3. $(2x^3 + 4x - 1) + (9x^2 + 5x)$

4. $(8x^2 + 3) + (2x^2 - 6x + 4) + (-5x^2 - 7x)$

Subtracting Polynomials: Distribute the (-) then combine like terms.
Express all answers in standard form.

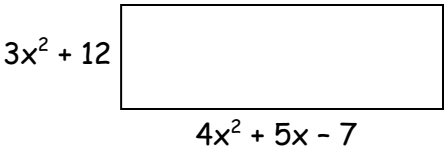
5. $(7x^2 + 9x) - (3x^2 + 7)$

6. $(3x^2 + 4x - 2) - (-4x^2 - 6x)$

7. $(3a + 2a^3) - (a - 3)$

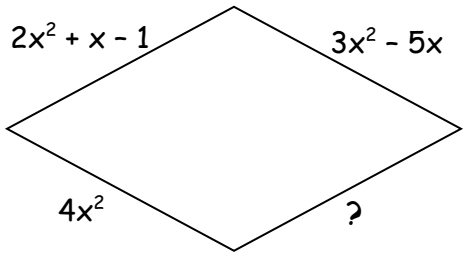
8. $(6y^3 + 7y) - (3y^2 + 5) + (y^2 - 10y - 1)$

9. Write a polynomial expression in simplest form that represents the perimeter of the rectangle.



10. Subtract $5x^2 - 2x + 1$ from $x^2 + 5x$

11. What is the length of the missing side of the quadrilateral shown if the perimeter is $5x^2 + 2x + 1$?



Turn and Talk: Is it possible that the sum of two binomials results in a monomial? Support your response with an example.