Lesson 2A.1.1 and 2A.1.2 – Structures of Expressions Adding and Subtracting Polynomials

By the end of this lesson, I will be able to answer the following questions…

1. How can a variable and its power be used to determine which terms are like terms?

2. How do I add and subtract polynomials?

3. How can I apply polynomial operations to problems involving geometry (perimeter)?

Vocabulary

- Monomial: an expression with one term consisting of a number, a variable or a product of which.

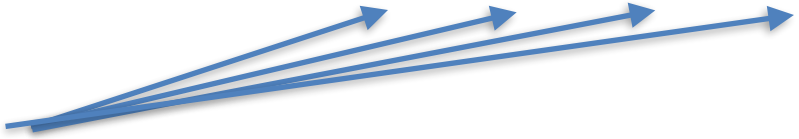
$3,\ x,\ 2x^2,\ xy\ \ldots$

- Polynomial: a monomial or sum of monomials that contains variables, numeric quantities or both.

$3x+5,\ 5x^5-4x+3,\ 3x-4y\ \ldots$

- Standard Form: Arranging a polynomial in order of greatest to least powers.

$3x^3-2x^2+5x-10$



- Term: Each "part" of a polynomial.

- Like Terms: Terms that contain the same variable(s) raised to the same power.

$2x$ and $5x$, $3x^2$ and $25x^2$, $10xy$ and $7xy$…

- Distributive Property:

$a(x+c)\rightarrow ax+ac$

so.....

$3(2x-5)\rightarrow 6x-15$

Prerequisite Skills with Practice

Evaluate the following.

$-7+5+(-2)=$

$-5-5-(-4)=$

Use the distributive property to rewrite in standard form.

$5(3-2x^2)$

$-2(9x-2x^2+3)$

Example one

Find the sum of:

$(16y^4+14y^2-6y-4)+(7y^3+14y+3)$

Put your answer in standard form

Example two

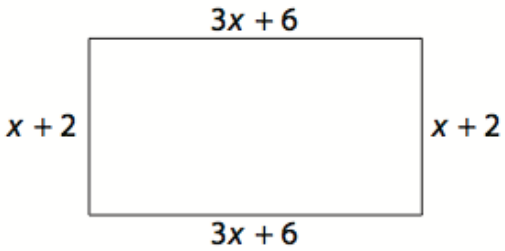
Find the difference of:

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

Put your answer in standard form

Example Three

Find the perimeter of the figure to the right. Then find the perimeter (feet) is x is 7.



Example Four

Use your knowledge of polynomials to answer the question to the right

A bicycle company produces "x" bicycles at a **cost** represented by the polynomial

$$x^2 + 10x + 100000$$

The **revenue** for "x" bicycles is represented by the polynomial

$$2x^2 + 10x + 500$$

Find a polynomial that represents the company's profit.

If the company only has enough materials to make 300 bicycles, should it make the bicycles? Defend your answer mathematically.

THE END

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