9-1 Operations with Polynomials
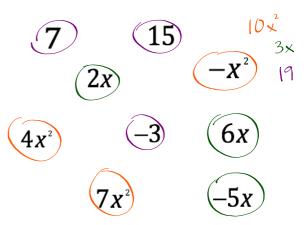
Objectives:

- I can identify like terms

- I can perform operations with polynomials including addition and subtraction

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Group all Like Terms

7 15 $10x^2$

$2x$ $-x^2$ $3x$

$4x^2$ -3 $6x$ 19

$7x^2$ $-5x$

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Standard Form

Write the terms in order from <u>highest to lowest exponent</u>

$$7x^3 - 3x^2 + x - 12$$

Write the following in standard form

$$3x^4 - x - 5 + 7x^3 - 4x^2$$

$$3x^4 + 7x^3 - 4x^2 - x - 5$$

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Adding Polynomials

To add polynomials, add all of the like terms together and write in standard form

$$\left(10x - 18x^3 + 6x^4 - 2\right) + \left(-7x^4 + 5 + x + 2x^3\right)$$

$$-x^4 - 16x^3 + 11x + 3$$

$$\left(4x^2 - x^3 + 2 + 5x^4\right) + \left(-x + 6x^2 + 3x^4\right)$$

$$8x^4 - x^3 + 10x^2 - x + 2$$

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Subtracting polynomials

To subtract polynomials, subtract all of the like terms together and write in standard form

$$1--3$$
$$-9+9$$

$$\left(2x^2-9x^3-x+1\right)-\left(-9x^3+6x^2+3x-3\right)$$

$$-4x^2-4x+4$$

$$13--1$$

$$\left(7x^3+13x-8x^4+2x^2\right)-\left(2x^2+9x^3-x+7\right)$$

$$-8x^4-2x^3+14x-7$$

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Perform the following operations

$$\left(17x^4+8x^2-9x^7+4-2x^3\right)+\left(11x^3-8x^2+12\right)$$

$$\left(4x^3+3x-x^2-5\right)-\left(7+2x^3-6x^2\right)$$

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Perform the following operations

$$\left(-3x+x^2+5-3x^3\right)+\left(5x-x^3+4x^2-1\right)$$

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

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