Math 9 – Unit 2: Algebra One Name: _____

Lesson #2: Adding and Subtracting Polynomials Date: _____

Now that we know how what terms, coefficients, variables, and constants are, we can start to work on the arithmetic of algebra. Today we will add and subtract polynomials. Essentially, we are just collecting like terms.

Examples: Add the polynomials, putting the answer in descending order.

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

b) $\left(3p^2+4+3p\right)+\left(3p^2-8p+7\right)+\left(2p^2-4\right)$

Subtracting polynomials requires more effort. Given the statement, $\left(5x+4\right)-\left(3x-2\right)$, every term inside the brackets after the minus sign need to be subtracted. What you do is $5x-\left(3x\right)$ then $4-\left(-2\right)$, resulting in:

Examples: Subtract the polynomials, putting the answer in descending order.

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

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

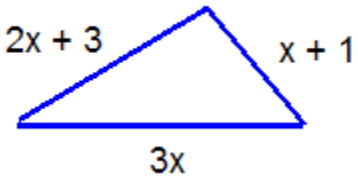
c) $\left(7x+7\right)-\left(7x^2+8x^3+4x^4\right)-\left(3x^4+8\right)$

d) $\left(8u^3v^4+2v^4\right)-\left(6v^4+7u^2v^4-3u^3v^4\right)+\left(8u^2v^4-8u^3v^4\right)$

Note: If you were to be asked to subtract 6 from 9, how would you answer? Essentially, you are doing $9-6$. The same holds true with polynomials:

Example: Subtract $4x^2+5x-3$ from $9x^2+3x-7$ -- this is not an expression. Turn it into an expression by writing $\left(2^{nd}\ polynomial\right)-\left(1^{st}\ polynomial\right)$

Example: a) Given the following triangle, determine an expression for the perimeter.



b) Let $x=6cm$, determine the perimeter of the triangle.