Math 9 – Unit 2: Algebra One Name: _____

Lesson #5: Dividing Monomials Date: _____

Learning Goal: We are learning to divide by monomials.

We've added, subtracted, multiplied, and even raised monomials to powers. All that is left is dividing by monomials. First, let's develop a rule with numbers.

Simplify $\frac{4^5}{4^3}$

This leads to our 4th exponent law. When dividing, _____ the exponents. Time to put it into practice!

a) $\frac{x^8}{x^5}$ b) $\frac{y^{72}}{y^{46}}$ c) $\frac{m^5n^3}{m^2n}$ d) $\frac{18p^7q^9}{3p^2q^2}$

The final step is to divide a monomial into a polynomial, such as $\frac{4x^5-2x^3+6x^2}{2x^2}$. However, first let's look back at adding fractions so we can see an integral step that we will need to use:

$\frac{1}{2}+\frac{3}{4}+\frac{5}{8}$

Keep in mind when doing the following questions that the denominator gets applied to all the terms in the numerator.

a) $\frac{4x^5-2x^3+6x^2}{2x^2}$ b) $\frac{16x^3y^5+8x^2y^4}{4x^2y}$

c) $\dfrac{40a^3b^6 - 50a^2b^3 + 10ab}{10ab}$

d) $\dfrac{9x^7 + 27x^5 - 15x^4}{-3x^3}$

e) $\dfrac{192r^{78}s^{34} - 144r^{65}s^{53} - 256r^{98}s^{23} + 80r^{88}s^{45}}{16r^{33}s^{21}}$

Success Criteria:

- I can divide like variables by subtracting their exponents
- I can understand the difference between dividing coefficients and dividing variables
- I can divide the monomial into each term of a polynomial separately
- I can recognize that when you divide two identical monomials, the result is one.