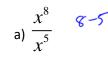
Math 9 - Unit 2: Algebra One

Lesson #5: Dividing Monomials

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. 5回3=2

This leads to our 4th exponent law. When dividing, <u>Subtact</u> the exponents. Time to put it into practice!



b)
$$\frac{y^{72}}{v^{46}}$$

c)
$$\frac{m^5 n^3}{m^2 n}$$

d)
$$\frac{18p^7q^9}{3p^2q^2}$$

b)
$$\frac{y^{72}}{y^{46}}$$
 c) $\frac{m^5 n^3}{m^2 n}$ d) $\frac{18p^7 q^9}{3p^2 q^2}$ e) $\frac{15 \times 3}{6 \times 2}$ = $\sqrt{26}$ = $\sqrt{3}$ = $\sqrt{6}$ = $\sqrt{5}$ = $\sqrt{2}$

$$=$$
 y^{26}

$$= m n^2$$

$$=6\rho^{5}q^{7}$$

$$=\frac{5}{2}\chi^2$$

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:

$$\frac{1}{2^{4}} \frac{3^{12}}{4^{12}} \frac{5}{8}$$

$$= \frac{4}{8} + \frac{6}{8} + \frac{5}{8} \implies \frac{4+6+5}{8} = \frac{15}{8}$$

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

a)
$$\frac{4x^3 - 2x^3 + 6x^2}{2x^2}$$

$$= \frac{4x^5}{2x^2} - \frac{2x^3}{2x^2} + \frac{6x^2}{2x^2}$$

$$= 2x^3 - x + 3$$

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

$$= \frac{16x^{3}y^{5}}{4x^{2}y^{4}} + \frac{8x^{2}y^{4}}{4x^{2}y^{4}}$$

$$= 4xy^{4} + 2y^{3}$$

MTH1W
$$+ cnom = 0$$
c) $\frac{40a^3b^6 - 50a^2b^3 + 10ab}{10ab}$

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

$$= 4a^2b^5 - 5ab^2 + 1$$

$$+ (nomial)$$

$$=-3x^{4}-9x^{2}+5x$$

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

$$= 12r^{45} + 3 - 9r^{32} + 33 - 16r^{52} + 5r^{55} = 24$$

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.