Math 060 WORKSHEET NAME:___________________________

6.5 Dividing Polynomials

MORE RULES FOR EXPONENTS	EXAMPLES: Simplify	
Power of a Quotient: $\left(\frac{x}{y}\right)^n = \frac{x^n}{y^n}$	$\left(\frac{x}{3}\right)^4 =$	$\left(\frac{2x^3}{3y^2}\right)^4 =$
Quotient Rule: $\frac{x^m}{x^n} = x^{m-n}$; $m > n$ and $x \neq 0$ *This is just dividing out by a common factor.*	$\frac{8y^2y^4}{4y^3} =$	$\frac{(x^2y^3)^2}{x^3y^4} =$

Simplify the following:

a.) $x^2 + x^2$ b.) $x^2 + x$ c.) $x^2 \cdot x$

d.) $x^2 \cdot x^2$ e.) $\frac{x^2}{x^2}$ f.) $\frac{x^2}{x}$

Zero Exponents

When we looked at the quotient rule for exponents ($\frac{x^m}{x^n} = x^{m-n}$) in the previous section, we assumed the exponent in the numerator was larger than the exponent in the denominator. If the exponents are the same, we could get

$\frac{3^4}{3^4} = 3^{4-4} = 3^0$ on the other hand $\frac{3^4}{3^4} = \frac{81}{81} = 1$ we conclude that $3^0 = 1$.

This suggests the following definition of zero exponents:

If x is any nonzero real number, then

$$x^0 = 1$$

EXAMPLE: Evaluate

a.) $\left(-\frac{1}{2}\right)^0$ b.) $(3x)^0$ c.) $-3x^0$ d.) $\frac{x^6}{3x^6}$