MFM 2P Mrs. Roen Name: _____

Course: MFM2P Gr. 10 Applied **Lesson: 6-5**

Unit: Quadratic Expressions **Topic: Exponent Review**

- ***homework check:*** **Lesson 6 - 4**

- ***note:*** **Exponent Review**

Recall all five exponent rules:
when multiplying powers, keep the base and add the exponents
when dividing powers, keep the base and subtract the exponents
when given a power of a power, keep the base and multiply the exponents
anything raised to the zero exponent is equal to one
anything with a negative exponent must be reciprocated

Simplify each of the following using your exponent rules. All exponents must be positive.

$4^2 \times 4^3 =$
$= 4^{2+3}$
$= 4^5$
$= 1024$

$a^4 \times a^7 =$
$= a^{4+7}$
$= a^{11}$

$(-2x^3)(3x^5) =$
$= (-2)(3)x^{3+5}$
$= -6x^8$

$\frac{4^8}{4^5} =$
$= 4^{8-5}$
$= 4^3$
$= 64$

$\frac{a^{12}}{a^5} =$
$= a^{12-5}$
$= a^7$

$\frac{88x^4}{-11x^2} =$
$= \frac{88}{-11}x^{4-2}$
$= -8x^2$

$(3^2)^3 =$
$= 3^{2(3)}$
$= 3^6$
$= 729$

$(a^5)^3 =$
$= a^{5(3)}$
$= a^{15}$

$(3x^2)^4 =$
$= 3^4 x^{2(4)}$
$= 81x^8$

$2^0 =$
$= 1$

$x^0 =$
$= 1$

$(-3x^7)^0 =$
$= 1$

$2^{-3} =$

$= \left(\frac{1}{2}\right)^3$

$= \frac{1}{8}$

$\left(x^3\right)^{-2} =$

$= x^{-6}$

$= \frac{1}{x^6}$

$3x^{-2} =$

$= \frac{3}{x^2}$

- ***homework assignment:*** **<u>Lesson 6 - 5</u>**

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Lesson 6 – 5: Exponent Review

1. Simplify each of the following.

a) $2^3 \times 2^2 =$ **b)** $3^2 \times 3 =$ **c)** $5^2 \times 5^2 =$ **d)** $6^7 \times 6^{-4} =$

e) $a^4 \times a^3 =$ **f)** $a^5 \times a^{-2} =$ **g)** $x^5\left(x^7\right) =$ **h)** $x^8\left(x^{-5}\right) =$

i) $2x\left(3x^2\right) =$ **j)** $-3x^4\left(2x\right) =$ **k)** $5x^{-3}\left(-2x^5\right) =$ **l)** $-6x^4\left(-x^{-2}\right) =$

2. Simplify each of the following.

a) $x^{10} \div x^3 =$ **b)** $7^6 \div 7^3 =$ **c)** $\frac{3^9}{3^5} =$ **d)** $\frac{4^5}{4} =$

e) $\frac{15x^7}{5x^4} =$ **f)** $\frac{100x^8}{-10x^3} =$ **g)** $\frac{108x^5}{-9x^{-2}} =$ **h)** $\frac{-54x^3y^7}{-6xy^4} =$

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3. Simplify each of the following.

a) $3^0 =$ **b)** $-x^0 =$ **c)** $-2x^0 =$ **d)** $\left(-3xy^5z^{-3}\right)^0 =$

4. Simplify each of the following. Decimal answers will not be accepted.

a) $2^{-1} =$ **b)** $3^{-2} =$ **c)** $4^{-3} =$ **d)** $x^{-2} =$

e) $3x^2y^{-2} =$ **f)** $2x^3\left(3x^{-4}\right) =$ **g)** $\dfrac{-14x^5}{7x^7} =$ **h)** $\dfrac{3x\left(5x^2\right)}{15x^5} =$

5. Simplify each of the following.

a) $\left(x^2\right)^6 =$ **b)** $\left(2^2\right)^3 =$ **c)** $\left(3^{-2}\right)^{-2} =$ **d)** $\left(2x\right)^3 =$

e) $\left(3x^2\right)^3 =$ **f)** $\left(-3x^2\right)^4 =$ **g)** $\left(-2x^4\right)^5 =$ **h)** $-5x^2\left(4x^2\right)^3 =$