Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Math 620 B Block

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Properties of Exponents Quiz Review

1. Match the property name with the correct algebraic rule

|  |  |  |  |
| --- | --- | --- | --- |
| **Property** | **Write in Matching Letter** | **Algebraic Rule** |  |
| 1. Product Rule |  | $$m^{0}=1$$ | A |
| 2. Quotient Rule |  | $$m^{-a}=\frac{1}{m^{a}}$$ | B |
| 3. Zero Exponent Rule |  | $$(mk)^{a}=m^{a}\*k^{a}$$ | C |
| 4. Distributive Property of Products |  | $$(m^{a})^{b}=m^{a\*b}$$ | D |
| 5. Distributive Property of Quotients |  | $$m^{a}\*m^{b}=m^{a+b}$$ | E |
| 6. Power Rule |  | $$\left(\frac{m}{k}\right)^{a}=\frac{m^{k}}{k^{a}}$$ | F |
| 7. Negative Exponent Rule |  | $$\frac{m^{a}}{m^{b}}=m^{a-b}$$ | G |

2. Write the following in expanded form:

1. $3^{3}$
2. $2^{4}x^{3}y^{2}$
3. $\left(\frac{4x}{m}\right)^{3}$

3. Your friend says that $2^{3}+2^{4}$ equivalent to $2^{7}$. Are they correct? Explain your reasoning using the exponent properties we learned in class.

Refresher – entering numerical exponential expressions into your calculator using $(-4)^{4}$:

 1. Begin by entering the open parentheses 🡪 (

 2. Next enter the quantity inside the parentheses, in this case it is -4 🡪 (-4

 3. Enter the closing parentheses 🡪 (-4)

 4. Enter the carrot button (raise to the power) 🡪 (-4)^

 5. Enter the exponent, in this case it is 4 🡪 (-4)^4

 6. If you followed the steps correctly your calculator should show a solution of 256

4. Simplify each expression below. Your solution should only have positive exponents (no negative exponents!). Simplify all **numbers** to a whole number. Read through the refresher above to accurately evaluate numerical exponential expressions.

1. $4x^{4}\*2x^{2}$ = b. $\left(3x\right)^{3}$=

c. $\frac{r^{5}h^{3}}{r^{2}h}=$ d. $ \left(\frac{3x}{y}\right)^{2}=$

e.  f. 

5. Evaluate each of the following expressions. Be sure to follow the order of operations!

a. 

b.  when 

c.  when y = 3