Wisdom Lane Middle School
Name:_____
Teacher: Mr. Tomeo

Homework #98

Date:_____
Period:_____

Exponent Rules 1

1. Write the value of each expression without **exponents**. Do them without a calculator.

a. 3^3 b. 2^7 c. 5^2 d. 10^4

e. $(-4)^3$ f. $\left(\frac{1}{6}\right)^2$ g. $(-9)^2$ h. -7^2

i. $\left(\frac{1}{6}\right)^2$ j. $\left(\frac{2}{3}\right)^3$ k. $\left(-\frac{1}{2}\right)^4$ l. 3^{2^2}

2. Rewrite each of the following expressions using exponents.

a. $a \cdot a \cdot a \cdot a \cdot a$ b. $a \cdot b \cdot a \cdot b \cdot a$ c. $y \cdot y \cdot x \cdot x \cdot x$ d. $(2a) \cdot (2a) \cdot (2a)$

e. $(-5a)(-5a)(-5a)(-5a)$ f. $\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2}$ g. $10 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 10$ h. $(3w)(x)(3w)(x)(x)$

3. Rewrite and simplify each expression so there is only one exponent. Do them without a calculator.

a. $(2^2)^3$ b. $(3^4)^2$ c. $(x^2)^5$ d. $(b^5)^3$

e. $(2^{-3})^{-2}$ f. $\left(2^{\frac{1}{2}}\right)^4$ g. $(a^3)^3$ h. $((x^2)^3)^2$

4. Rewrite and simplify each expression so there is one exponent for each variable. Do them without a calculator.

a. $(ab)^3$ b. $(x^2y)^4$ c. $(2ab^2)^2$ d. $(-3x)^3$

e. $2(3a^2)^2$ f. $(wxy)^3$ g. $(a^2b^2c^2)^3$ h. $(-2x)^4$

i. $\left(\frac{x}{y^3}\right)^2$ j. $\left(\frac{4}{y}\right)^3$ k. $\left(\frac{3m^2n}{p}\right)^3$ l. $\left(\frac{-2x^2}{y^2}\right)^3$

5. Explain or show the difference between $2x^2$ and $(2x)^2$.