## Problem Set \#\#2- Dower Raised to a Dower

Name: $\qquad$ Class: $\qquad$
Simplify each expression.
1.) $\left(x^{3}\right)^{4}$
2.) $x^{3} \cdot x^{4}$
3.) $\left(6^{8}\right)^{4}$
4.) $\left(3^{2} \cdot 7^{4}\right)^{5}$
5.) $\left(a^{2} b c^{3}\right)^{4}$
6.) $\left((-4)^{2} \cdot(-4)^{3}\right)^{6}$
7.) $(-p)^{5} \div(-p)^{3}=$
8.) $p q^{3} \cdot p^{5} q^{2}=$
9.) $\frac{\left(a^{4} \cdot a^{2}\right)^{4}}{a^{8}}$
10.) $\frac{\left(6^{3} \cdot 6^{3}\right)^{7}}{6^{10}}$
11.) $\frac{\left(x^{8} \cdot x^{4}\right)^{2}}{\left(x^{3}\right)^{6}}$
12.) $\left(113^{2} \cdot 37 \cdot 51^{4}\right)^{3}$
13.) $\frac{a^{9} \cdot a^{2} \cdot a^{2}}{a^{6} \cdot a^{3} \cdot a^{4}}$
14.) $\left(7^{9}\right)^{2}$
15.) $\frac{30 a^{7} b^{4}}{3 a^{3} b}$
16.) $2 x^{4} y^{2} \cdot 3 x^{2} y^{6}$
17.) $\frac{\left(6^{4} \cdot 6^{3}\right)^{4}}{\left(6^{2}\right)^{5}}$
18.) $\left(m^{5} \cdot m\right)^{3}$
19.) $a(a+b)=$
20.) $b(a+b)=$
21.) $\frac{a^{3}}{a^{-8}}$
22.) Tim things that $\left(a^{3}\right)^{2}=a^{5}$. Is he correct? Why or why not?

23.) a.) Express the number $100,000,000,000$ in exponential notation.
b.) How many times bigger is your answer from part (a) than $10^{5}$ ?
24.) If -7 is multiplied by itself 23 times, how would you write this in exponential notation?
25.) Would the answer to \#24 be positive or negative? Explain how you know.
26.) Evaluate $-2^{4}$ and ( -2$)^{4}$. Explain the difference between the two values.

Explanation:
$(-2)^{4}=$
27.) Evaluate $(-5)^{2}$ and $-5^{2}$. Explain the difference between the two values.

## Explanation:

$-5^{2}=$

