Name _____ Exponent Assignment 

What are the Laws of Exponents? Complete the table below. (1 each)

Product Laws	Quotient Laws	Power of a Power Law
$a^b \cdot a^c =$	$\frac{a^b}{a^c} =$	$(a^b)^c =$
$a^0 =$	$a^1 =$	$a^{-b} =$

Write each expression using a single exponent.

a. $6^2 \cdot 6^3$

b. $m^{10} \cdot m^{100}$

c. $(-4) \cdot (-4)^7$

d. $12^5 \cdot 12^{50}$

e. $m^1 \cdot m^{11}$

f. $4.5^{10} \cdot 4.5^{10}$

g. $2^3 \cdot 2 \cdot 2^8$

h. $9^{12} \cdot 9^6 \cdot 9^3$

i. $xy \cdot x^2y^3$

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Explain why each of the following statements is true. (Hint: Which Law of Exponents was used?) (2 each)

j. $9^3 \bullet 9^4 = 9^7$

k. $\frac{5^{10}}{5^{10}} = 5^0$

l. Seren says $\frac{4^5}{4^6} = 4^{-1}$. Ana says $\frac{4^5}{4^6} = \frac{1}{4^1}$. Who is correct and why?

m. A student simplified $5^2 \cdot 5^4$ as 25^6. Explain the student's error