

Name: Date:

Exit Ticket 73 - Chapter 5 Quiz 2 Review

Product of Powers

$a^m * a^n =$

Powers of Powers

Quotients of Powers (Division)

a^m	Dividing powers, same bases, keep the bases the same and	
${a^n} = \underline{\hspace{1cm}}$	the exponents.	

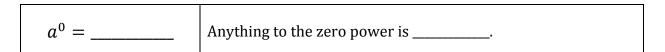
Powers of Products

$(ab)^m =$ Raising a product to a power, the exponent.
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Powers of Fractions

$$\left(\frac{a}{b}\right)^m =$$
 ______ Raising a fraction to a power, _____ the exponent.

Zero Exponents



Negative Exponents

$a^{-m} = $	A quantity to a negative exponent is over that quantity to the positive exponent.
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Standard/Decimal Notation to Scientific Notation:

•	Move decimal over until the number is between	and	Count the number
	of moves.		

- If the original number is greater than one, the exponent is ______.
- If the original number is less than one, the exponent is . .

Scientific Notation to Decimal/Standard Notation

- Negative Exponent Move decimal to the _____
- Positive Exponent Move decimal to the _____

Scientific Notation Examples

a. Write in scientific notation:	b. Write in scientific notation:
6430000 =	0.000000359 =
c. Write in standard notation:	d. Write in standard notation:
$6.51 \times 10^4 =$	$6.51 \times 10^{-4} =$

1. Simplify each expression. Show your work.

a. $x^2 \cdot x^3$	b. $(3y)^2 \cdot y^5$
c. 2 ⁴ · 5 ⁴	d. (2 ³) ⁵
e. $\left(\frac{1}{2^3}\right)^5$	f. $a^8 \cdot b^5 \cdot a^{12}$
g. $m^8 * \frac{1}{m^5}$	h. $r \cdot r^2 \cdot (2t) \cdot r^3 \cdot (2t)^3$
m.°	

2. Write each set of numbers in order from least to greatest. Use < symbols.

$$6.31 \times 10^{5}$$

$$6.31 \times 10^4$$

b.
$$4.5 \times 10^{-4}$$

$$4.5 \times 10^{-6}$$

c.
$$3.2 \times 10^3$$

$$3.2 \times 10^{-3}$$

$$-3.2 \times 10^3$$



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3. Determine whether each expression equals 10^8 using rules of exponents. Show or explain your work.

Original Expression	Explain or show work.	Equal to 10 ⁸ ? YES/NO
$(10^2)^4$		
$10^5 \cdot 10^3$		
$10^5 + 10^3$		
$(10^4)^4$		
2 ⁸ · 5 ⁸		
$10\cdot 10^7$		
$\frac{10^{12}}{10^4}$		
$\frac{(10^2)^4}{10^4}$		
$\frac{1}{10^{-8}}$		
$\frac{1}{10^8}$		
100 * 10 ⁶		
$\left(\frac{1}{10}\right)^{-8}$		
$10^8 * 10^0$		
6°(10°s)		

4. Write each expression as a single power of x.

a. $(x^{-2})(x^5)$	b. $\frac{x^4}{x^3}$
$c. \frac{x^3}{x^4}$	d. $\frac{(x^2)^{-3}}{x}$
e. $\frac{(x^2)^0 \cdot (x^{-3})}{x^{-1}}$	f. $\frac{(x^3)^0}{x^{-4}}$

5. Write each number in standard/decimal notation.

b. 5.68×10^{-3}



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6. Write each number in scientific notation.

a. 82,000	b. 0.00039
c28,000,000	d. 600 x 10 ⁴
e. 600 x 10 ⁻⁴	f0.031 X 10 ⁵
g. $(1.5 \times 10^3)(3 \times 10^{-5})$	h. $(3.1 \times 10^{-4})(4 \times 10^{-2})$