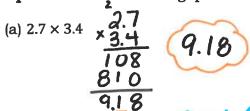
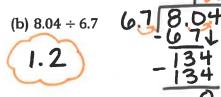
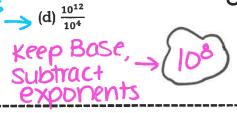
## **Multiply and Divide Scientific Notation**

Objective: I can find the product and quotient of numbers written in scientific notation.

Warm Up: Answer the following questions (without a calculator)







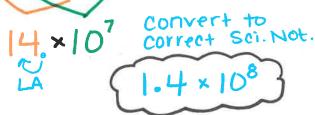
To find the product of numbers that are in scientific notation:

- 1. Multiply the first <u>factors</u> (the numbers before the multiplication sign)
- 2. Keep the **Base** of ten

\* product Rule:

3. ADD the exponents

Exercise 1- Evaluate the following  $(7 \times 10^3)$  (2 × 10<sup>4</sup>) Add Exponents.



Exercise 2- Evaluate the following  $(8.4 \times 10^2)$   $(2.5 \times 10^6)$ 

To find the quotient of numbers that are in scientific notation:

- the first factors (the numbers before the multiplication sign)
- 2. Keep the 📑 Se\_ of ten
- the exponents

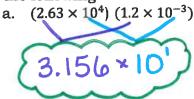
Exercise 3- Evaluate the following  $\frac{9 \times 10^{10}}{3 \times 10^6}$ 





## PROBLEM SET:

1. Evaluate the following



b. 
$$\frac{9 \times 10^{-11}}{2.4 \times 10^{8}}$$

d. 
$$\frac{1.24 \times 10^{1}}{4 \times 10^{-2}}$$
  
0.31 × 10<sup>3</sup>

2. Neurons are cells in the nervous system that process and transit information. An average neuro is about  $5 \times 10^{-6}$  meter in diameter. A standard table tennis ball is 0.04 meter in diameter. About how many times as great is the diameter of a ball than a neuron?

3. Central Park in New York City is rectangular in shape and measures approximately  $1.37 \times 10^4$  feet by  $2.64 \times 10^2$  feet. If one acre is equal to  $4.356 \times 10^4$  square feet, how many acres does Central Park cover? Round to the nearest hundredth. [HINT: space covered is area]



acres:  $\frac{3.62 \times 10^6}{4.356 \times 10^4}$   $0.83 \times 10^2 = 8.3 \times 10^4$  acres!

4. In 2005,  $8.1 \times 10^{10}$  text messages were sent in the United States. In 2010, the number of annual text messages had risen to 1,810,000,000,000. About how many times as great was the number of text messages in 2010 than 2005?