**Scientific Notation**

T**o write a number in scientific notation**, you rewrite the number as a product of a number between one and ten *and* some power of ten.

Write the following in Scientific Notation

1. 483

 Where do I place the decimal point so I have a number between 1 and 10?

 *Answer between the 4 and 8, so we have 4.83*

 Moving the decimal point 2 places to the left, that’s dividing by 100 or 102

To make sure I don’t change the original number, I have to multiply by 100 or 102, multiplying and dividing by the same number is multiplying by 1

Therefore 483 = 4.83 x 102

1. 50,962 = 5.0962 x 104
2. 8,602,736 = 8.602736 x 106
3. .00057 = 5.7 x 10­–4
4. .38 = 3.8 x 10–1

**Multiplying or Dividing with Scientific Notation**

To multiply or divide numbers written in scientific notation is no different from you have already learned. That’s what is so great about math!

**Procedure – To multiply or divide numbers written in scientific notation.**

 1. Multiply the decimals

 2. Multiply the numbers with base 10 by add/sub exponents

 3. Rewrite your answer in scientific notation.

***Example*** (4.5 x 103)(3.4 x 105)

 1. (4.5)(3.4) = 15.3

 2. (103)(105) = 108

3. 15.3 x 108 is not in Scientific Notation

 The number 15.3 is not between 1≤ n < 10

 Therefore, I need to multiply by 1 by dividing 15.3 by 10 and multiplying 108 by 10.

 Final answer is 1.53 x 109

**Adding or Subtracting with Scientific Notation**

In order to add or subtract numbers in scientific notation, the exponents in the numbers with base 10 have to be the same.

**Procedure – To add or subtract numbers in scientific notation**

 1. Rewrite numbers with base 10 with the same exponent

 and move the decimal points with the numbers

 2. Add the decimals

 3. Write the answer in scientific notation

***Example*** (1.23 x 105) + (3.4 x 104)

 1. (1.23 x 105) + (.34 x 105)

 2. 1.23 + .34 = 1.57

 3. 1.57 x 105