Honors Chemistry Hour\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Wexler  
Scientific Notation Practice 1  
Date assigned\_\_\_\_\_\_

**Introduction:**  
Scientific notation is just a shorthand for large numbers and numbers less than one. It makes writing these numbers and doing computations with them enormously easier.

A. Numbers greater than one  
10 = 1 x 101   
100 = 1 x 102  
1000 = 1 x 103

1 x 103 means “one times ten, three times” (1x10x10x10).

B. Numbers less than one  
0.1 = 1 x 10-1  
0.01 = 1 x 10-2  
0.001 = 1 x 10-3

C. Decimal rule: the decimal must always come after the first digit. Adjust the base 10’s exponent accordingly.

10.0 x 105 = 1.00 x 106   
0.45 x 105 = 4.5 x 104

“If you divide by ten, you must multiply by ten”

“If you multiply by 10, you must divide by ten”

or “If one gets bigger, the other gets smaller”

**Problem Set:**

A. Convert each of the following numbers into its scientific notation:

1. 20 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. 496.2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. 1200000 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B. Convert each of the following numbers into its scientific notation:

4. 0.20 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. 0.065 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. 0.0000473 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

C. Apply the decimal rule:

7. 15 x 108 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. 25.6 x 105 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. 0.52 x 104 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. 0.0062 x 1012 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_