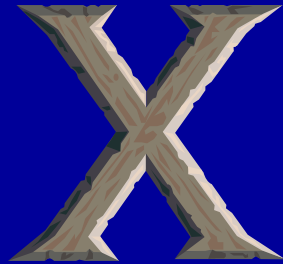


Scientific Notation



An easy way for scientists to write
really big and really small
numbers

Scientific Notation

Rules:

1. First number: $1 \leq x < 10$
2. Multiply by $10^?$

Examples:

$$2500 = 2.5 \times 10^3$$

$$0.000379 = 3.79 \times 10^{-4}$$

$$993.4 = 9.934 \times 10^2$$

$$2.51 \times 10^3 = 2510$$

$$1.376 \times 10^{-5} = 0.00001376$$

Standard Notation → Scientific Notation

1. Move the decimal point so that you have a number greater than or equal to 1 and less than 10.
2. Count the number of decimal places moved.
3. Add $\times 10^?$
 - If you moved to the left, add the number
 - If you moved to the right, subtract the number
 - **Remember LARS: Left, add; Right, subtract**

Practice Problem 1

- Write 123,400 in scientific notation.

Scientific Notation → Standard Notation

1. Write the first number.
2. If the power on 10 is positive, move the decimal place that many units to the right (add zeroes if necessary).
3. If the power on 10 is negative, move the decimal place that many units to the left (add zeroes if necessary).

Practice Problem 2

- Write 8.2×10^{-6} in standard notation.

Dealing With Exponents

- $10^A \cdot 10^B = 10^{A+B}$
- $10^A/10^B = 10^{A-B}$
- $\frac{1}{10^A} = 10^{-A}$