Name: _____

Engineering Notation Worksheet

Discussion Overview

Scientists and engineers often work with very large and/or very small numbers. The ordinary practice of using commas and leading zeroes proves to be very cumbersome in this situation. Scientific notation is a more compact and less error prone method of representation. The number is split into two portions: a precision part (the mantissa) and a magnitude part (the exponent, being a power of ten). For example,

2300 = 2.3e3
0.0005 = 5e-4

The only difference between scientific notation and engineering notation is that for engineering notation the exponent is always a multiple of three. So, for the examples above, we have

2300 = 2.3e3
0.0005 = 0.5e-3

Engineering notation goes one step further by using a set of prefixes to replace the multiples of three for the exponent. The prefixes are

e12 = Tera (T)	*e9 = Giga (G)*	*e6 = Mega (M)*	*e3 = Kilo (K)*
e-3 = milli (m)	*e-6 = micro (μ)*	*e-9 = nano (n)*	*e-12 = pico (p)*

Procedure

1. Convert the following into engineering notation

    a. 1,500
    b. 63,200,000
    c. 0.0234
    d. 0.000059
    e. 170

2. Convert the following into normal longhand notation

    a. 1.23 K
    b. 2 m
    c. 0.439 M
    d. 54.7 T
    e. 9.27 μ

f. 15.6 p

3. Use the appropriate prefix for the following values to represent them in engineering notation.

   a. 4e6 volts
   b. 3.3e-6 grams
   c. 5.1e3 meters