### Review of Scientific Notation from the Institute for Energy and Environmental Research

Scientific notation provides a place to hold the zeroes that come after a whole number or before a fraction. The number 100,000,000 for example, takes up a lot of room and takes time to write out, while 108 is much more efficient.

The small number to the right of the 10 in scientific notation is called the exponent. Note that a negative exponent indicates that the number is a fraction (less than one).

The line below shows the equivalent values of decimal notation (the way we write numbers usually, like "1,000 dollars") and scientific notation (103 dollars). For numbers smaller than one, the fraction is given as well.

Decimal notation 0.01 0.1 1 10 100 1,000

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Scientific notation 10-2 10-1 100 101 102 103

Practice with Scientific Notation - Write out the decimal equivalent (regular form) of the following numbers that are in scientific notation.

Section A: Model: 101 = 10

1) 102 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4) 10-2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2) 104 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5) 10-5 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3) 107 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6) 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section B: Model: 2 x 102 = 200

7) 3 x 102 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10) 6 x 10-3 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8) 7 x 104 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 11) 900 x 10-2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

9) 2.4 x 103 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 12) 4 x 10-6 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section C: Now convert from decimal form into scientific notation.

Model: 1,000 = 103

13) 10 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 16) 0.1 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14) 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 17) 0.0001 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15) 100,000,000 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 18) 1 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Section D: Model: 2,000 = 2 x 103

19) 400 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 22) 0.005 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20) 60,000 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 23) 0.0034 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21) 750,000 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 24) 0.06457 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### For more practice, check out http://janus.astro.umd.edu/astro/scinote.html