

## Scientific Notation:

To write a decimal (number in base 10), using scientific notation, you must:

— Standard form —

- 1) move the decimal to create a number that is between 1-10.  
 $1 \leq \# < 10$

ex:  $62.5 \Rightarrow 6.25$

$0.324 \Rightarrow 3.24$

$812. \Rightarrow 8.12$

$10. \Rightarrow 1.0$

- 2) multiply this number by a power of 10.

• exponent determines

how many spaces the decimal moves.

ex:  $62.5 = 6.25 \times 10^1$

$0.324 = 3.24 \times 10^{-1}$

$812. = 8.12 \times 10^2$

$10. = 1.0 \times 10^1$

→ positive exponent = multiply  
(by a power of 10)

→ negative exponent = divide  
(by a power of 10)

Write each number in scientific notation:

1)  $2,000,000 = 2.0 \times 10^6$       2)  $0.0000002 = 2.0 \times 10^{-7}$

3)  $6.7 = 6.7 \times 10^0$       4)  $71,314 = 7.1314 \times 10^4$

5)  $0.00567001 = 5.67001 \times 10^{-3}$

## Scientific Notation, cont'd: Sci. not $\rightarrow$ standard form

To write a number in scientific notation ( $2.3 \times 10^3$  for example, as a decimal (ie. 2300), you must:

- 1) Decide is this a big number (greater than 1) or a small number (less than 1).  
 $\rightarrow$  look at the exponent!

- positive exponent means the number will be larger (multiply)
- negative exponent means the number will be smaller (divide)

- 2) Find the decimal and move it the number of spaces indicated.

- positive = make larger
- negative = make smaller

larger!  
ex:  $6.25 \times 10^{(1)} = 62.5$

smaller  
 $3.24 \times 10^{(-1)} = 0.324$

$8.12 \times 10^2 = 812$

$1.0 \times 10^{(1)} = 10$

Write each number as a decimal:

1)  $2 \times 10^5 =$

200000

200,000

2)  $8.04 \times 10^{-4}$

.000804

0.000804