

Scientific Notation, Algebra, and Metric System Review

Name _____

Hour ____ Date _____

Scientific Notation

In scientific notation, numbers are written in the form $M \times 10^n$, where M is a number greater than or equal to 1 and less than 10, and n is an integer.

- Decide if each of the following numbers is correct scientific notation (write YES or NO). If not, explain why not.
a. 2.34×10^{-7} b. 23.4×10^8 c. 3×10^3 d. $1.00 \times 10^{1.41}$ e. 1.7×10^0
- Convert these numbers into scientific notation. Note: spaces in a decimal, like in part b, are just to help you count digits much like commas used in numbers like 12,000,000.
a. 54.4 d. 3.141 592 654
b. 0.000 000 999 c. 105.7
- Convert these numbers out of scientific notation
a. 3.00×10^8 b. 3.35×10^{-1}
c. $6.02\ 214\ 15 \times 10^{23}$ d. $6.626\ 069\ 311 \times 10^{-34}$
- Use your calculator to solve these problems and express your answer in scientific notation. Actually type them all yourself on your calculator, so you're sure you know how to enter them correctly.
Note: Be sure you're using the scientific notation key, usually EE or 2nd , , and not typing \times 1 0 ^ . However, answers should never be written the way your calculator displays them, like $4.54\text{E}7$. Always write it out like 4.54×10^7
a. $5.44 \times 10^7 \times 8.1 \times 10^{-4} =$ b. $9.99 \times 10^{23} - 8.76 \times 10^{-3} =$
c. $\frac{6.42 \times 10^{-3}}{5.23 \times 10^{19}} =$

Algebra

- Rewrite these equations in terms of V . ex. $D = \frac{m}{V}$ gets changed to $V = \frac{m}{D}$
a. $mol = M \times V$ b. $\frac{PT}{V} = k$
c. $PV = nRT$
- Use the formula $\Delta T_b = K_b \times m \times n$. Let $K_b = 0.51$, $n = 2$, and $\Delta T_b = 1.21$. Calculate m .

-over-

Metric System

7. Fill out these tables having to do with the metric system. Use your book only if you need to. Chapter 5 in the book lists more prefixes and base units than you need to know right now—you need the ones included here.

Base unit	abbreviation	quantity measured
meter		length
	L	
gram		

prefix	abbreviation	meaning	power of ten
mega	M		
		1,000	10^3
deci			
	c		
		1/1,000	
	μ		10^{-6}
nano			

8. Fill in the blanks with a whole number, decimal, or fraction.

a. ___ m = 1 km

b. _____ ng = 1 g

c. ___ m = 1 cm

d. _____ μ L = 1 L

e. ___ g = 1 dg

f. _____ Mm = 1 m