

# Unit 1 Review Sheet

Name \_\_\_\_\_

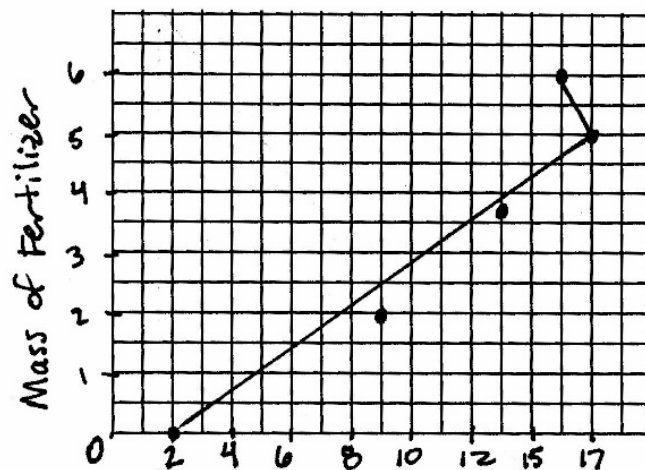
- The three basic quantities used in mechanics (the study of \_\_\_\_\_) are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. Their units in the MKS system are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- The units in #1 are called \_\_\_\_\_ units. They can be combined through calculations into \_\_\_\_\_ units. The unit for velocity in the MKS system is the m/s. It is an example of a \_\_\_\_\_ unit.
- What is the difference between weight and mass?
- Fill in the chart, keeping the same number of significant digits:

Decimal Notation	Scientific Notation	# of Sig. Digits
3,600		
	$2.10 \times 10^{-4}$	
0.0002040		
	$6.003 \times 10^1$	
	$7.0 \times 10^6$	

- Round the following to 3 significant digits:
  - 4,565,001 = \_\_\_\_\_
  - $2.8975 \times 10^{-3} =$  \_\_\_\_\_
  - 0.002101 = \_\_\_\_\_
- Calculate and round to the correct number of digits:
  - $\frac{7,860 \times 0.040}{32.1 \times 0.0111} =$  \_\_\_\_\_
  - $\frac{(4.5 \times 10^{-1})(8.00 \times 10^{11})(9.0 \times 10^2)}{(5.862 \times 10^3)} =$  \_\_\_\_\_
- Fill in the blanks:
  - \_\_\_\_\_ Mm = \_\_\_\_\_ m
  - \_\_\_\_\_ cs = \_\_\_\_\_ s
  - \_\_\_\_\_ mg = \_\_\_\_\_ g
  - \_\_\_\_\_ m = \_\_\_\_\_ dm
- Convert:
  - 56 cs to s
  - 36.7 kg to dg
  - 300 km/h to m/s

9. \_\_\_\_\_ refers to the closeness of a measurement to an accepted value. \_\_\_\_\_ refers to the reproducibility of a measurement.
10. A scientist fed identical plants with different masses of fertilizer and measured the growth of the plants each week. From the data, he constructed a graph. Indicate 5 errors in the graph.

Mass of Fertilizer (g)	Plant Growth (cm)
0.0	2.2
2.0	9.0
4.0	14.2
5.0	17.0
6.0	16.0



Use the graph above (even though it has errors) to find the plant growth expected from the use of 3.0g of fertilizer.

11. What is the difference between *interpolation* and *extrapolation*?
12. When graphing data, the \_\_\_\_\_ variable is placed on the x-axis and the \_\_\_\_\_ variable on the y-axis.
13. How do the graphs of direct and inverse proportions differ?  
How is a proportion changed into a mathematical equation?
14. A formula used often in physics is  $K.E. = \frac{1}{2} mv^2$ . If kinetic energy (K.E.) is held constant, mass (m) is \_\_\_\_\_ proportional to velocity squared ( $v^2$ ). If velocity is held constant, kinetic energy is \_\_\_\_\_ proportional to mass.
15. Study all your notes, worksheets, quizzes, and labs!