

NAME _____

PERIOD _____

UNIT 1 HOMEWORK**1.1 THE METRIC SYSTEM AND SI UNITS**

1. Convert each of the following length measurements to its equivalent in meters.
 - a. 1.1 cm
 - b. 76.2 pm
 - c. 2.1 km
 - d. 0.123 Mm
2. Convert each of the following mass measurements to its equivalent in kilograms.
 - a. 147 g
 - b. 11 μg
 - c. 7.23 Mg
 - d. 478 mg
3. Express your age in the following units:
 - a. Years
 - b. Days
 - c. Hours
 - d. Minutes
 - e. Seconds

1.2 SCIENTIFIC NOTATION AND SIGNIFICANT DIGITS

4. Express each measurement in scientific notation.
 - a. 0.000006 m
 - b. 5,400,000 kg
 - c. 71×10^3 s
 - d. 33×10^{-3} m
5. Express each measurement in standard notation.
 - a. 0.9×10^{-3} kg
 - b. 2.5×10^6 s
6. Identify the precision of each measurement by stating the number of significant digits.
 - a. 246.32 km
 - b. 1.00 mg
 - c. 0.025 s
 - d. 3000 cm
 - e. 5.60×10^{-6} g
 - f. 406 μs
7. Solve the following problems by using correct significant digits.
 - a. $6.201 \text{ cm} + 7.4 \text{ cm} + 0.68 \text{ cm} + 12.0 \text{ cm}$
 - b. $4.75 \text{ m} - 0.4168 \text{ m}$
 - c. $3.2145 \text{ km} \times 4.23 \text{ km}$
 - d. $13.78 \text{ g} \div 11.3 \text{ g}$

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UNIT 1 HOMEWORK**1.3 GRAPHICAL ANALYSIS**

8. The mass values of specified volumes of pure gold nuggets are given in **Table 1-4**.

- Plot the mass versus volume from the values given in the table and draw the curve that best fits all points.
- Describe the resulting curve in complete sentences. What type of relationship exists between the mass of pure gold nuggets and their volume?
- What is the value of the slope of this graph? Include the proper units.
- Write the equation showing mass as a function of volume for gold.
- Write a sentence that provides a word interpretation of the equation showing mass as a function of volume for gold.

Mass of Pure Gold Nuggets	
Volume (cm³)	Mass (g)
1.0	19.4
2.0	38.6
3.0	58.1
4.0	77.4
5.0	96.5

9. The speed of an object over given time intervals is given in the following table.

Time (s)	0	5	10	15	20	25	30	35
Speed (m/s)	12	10	8	6	4	2	2	2

- Plot the speed versus time from the values given in the table and draw the curve that best fits all points.
- Describe the resulting curve in complete sentences. What type of relationship exists between the speed of the object and time?
- What is the value of the slope of this graph? Include the proper units.
- Write the equation showing speed as a function of time for the moving object.
- Write a sentence that provides a word interpretation of the equation showing speed as a function of time for the moving object.

1.4 RIGHT TRIANGLE REVIEW AND DIMENSIONAL ANALYSIS

Using the generic triangle to the right, Right Triangle Trigonometry and Pythagorean Theorem solve the following. Your calculator must be in degree mode.

- $\theta = 55^\circ$ and $c = 32$ m, solve for a and b .
- $\theta = 45^\circ$ and $a = 15$ m/s, solve for b and c .
- $b = 17.8$ m and $\theta = 65^\circ$, solve for a and c .
- $a = 250$ m and $b = 180$ m, solve for θ and c .
- $a = 25$ cm and $c = 32$ cm, solve for b and θ .
- $b = 104$ cm and $c = 65$ cm, solve for a and θ .

