

- Which of the following most likely contains a pure substance?
 - a. sugar (sucrose)
 - b. iodized salt
 - c. milk
 - d. window cleaner
 - e. household bleach
- Gold (Au) is classified as a:
 - a. Element
 - b. Compound
 - c. Heterogeneous mixture
 - d. Homogeneous mixture
- Water (H₂O) is classified as a:
 - a. Element
 - b. Compound
 - c. Heterogeneous mixture
 - d. Homogeneous mixture
- The physical transition from a gas directly to a liquid is called:
 - a. Evaporation
 - b. Condensation
 - c. Melting
 - d. Freezing
 - e. Sublimation
 - f. Deposition
- The physical transition from a solid directly to a gas is called:
 - a. Evaporation
 - b. Condensation
 - c. Melting
 - d. Freezing
 - e. Sublimation
 - f. Deposition
- Classify each of the following as exact numbers (E) or measured numbers (M):
 - M Water boils at 212°F.
 - E The classroom contains 75 chairs.
 - M The density of mercury is 13.6 g/mL.
 - E 1 meter = 1,000,000 micrometers.

Answer
key

7. How many significant figures are in each of the following numbers?

- a. 2.040 cm 4
- b. 2.30×10^{-3} kg 3
- c. 0.0084 mL 2
- d. 100. K 3
- e. 100 K 1

8. What is the sum of $0.001 + 3.25 + 11.2$? Express your answer to the correct number of significant digits, assuming that you measured each number in a lab.

$$\begin{array}{r} 11.2 \\ + 3.25 \\ + 0.001 \\ \hline 14.451 \end{array}$$

14.5

9. Convert your height from inches to centimeters or from centimeters to inches.
(Start with the units in which you usually think of your height.)
(Reminder: In chemistry classes, you need to show your work every time you need to calculate something.)

examples $74 \text{ in} \left(\frac{2.54 \text{ cm}}{1 \text{ in}} \right) = 190 \text{ cm}$

$$188 \text{ cm} \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right) = 74.0 \text{ in}$$

10. What is your height in gigameters?

$$190 \text{ cm} \left(\frac{1 \text{ m}}{10^2 \text{ cm}} \right) \left(\frac{1 \text{ Gm}}{10^9 \text{ m}} \right) = \boxed{1.9 \times 10^{-9} \text{ Gm}}$$

11. What is your height in miles?

$$74 \text{ in} \left(\frac{1 \text{ ft}}{12 \text{ in}} \right) \left(\frac{1 \text{ mi}}{5280 \text{ ft}} \right) = \boxed{1.2 \times 10^{-3} \text{ mi}}$$