

Chp1 Quiz Chemical Foundations**Multiple Choice**

Indicate the answer choice that best completes the statement or answers the question.

- A metric unit for length is
 - gram
 - milliliter
 - yard
 - kilometer
 - pound
- Order the four metric prefixes from smallest to largest.
 - nano- < milli- < centi- < deka-
 - milli- < nano- < centi- < deka-
 - deka- < centi- < nano- < milli-
 - deka- < centi- < milli- < nano-
 - centi- < nano- < deka- < milli-
- Convert 0.2924 m to mm.
 - 2.924×10^{-3}
 - 2.924×10^{-4}
 - 0.02924 mm
 - 292.4 mm
 - none of these
- As part of the calibration of a new laboratory balance, a 1.000-g mass is weighed with the following results:

Trial	Mass
1	1.201 ± 0.001
2	1.202 ± 0.001
3	1.200 ± 0.001

The balance is:
 - Both accurate and precise.
 - Accurate but imprecise.
 - Precise but inaccurate.
 - Both inaccurate and imprecise.
 - Accuracy and precision are impossible to determine with the available information.
- A scientist obtains the number 0.045006700 on a calculator. If this number actually has four (4) significant figures, how should it be written?
 - 0.4567
 - 0.4501
 - 0.0450
 - 0.04500
 - 0.04501
- Express the number 0.0610 in scientific notation.
 - 0.61×10^3
 - 61.0×10^0
 - 610×10^{-4}
 - 6.10×10^{-2}
 - 0.610×10^{-1}
- Using the rules of significant figures, calculate the following: $4.0021 - 1.779$
 - 2
 - 2.223
 - 2.2
 - 2.22
 - 2.2231

8. A method of separation that employs a system with two phases of matter, a mobile phase and a stationary phase, is called
- filtration
 - chromatography
 - distillation
 - vaporization
 - homogenization
9. A piece of indium with a mass of 21.93 g is submerged in 46.3 cm³ of water in a graduated cylinder. The water level increases to 49.3 cm³. The correct value for the density of indium from these data is:
- 7.312671 g/cm³
 - 7.3 g/cm³
 - 0.13 g/cm³
 - 0.444 g/cm³
 - 2.24 g/cm³
10. The boiling of water is a
- physical change because the water merely disappears
 - physical change because the gaseous water is chemically the same as the liquid
 - chemical change because heat is needed for the process to occur
 - chemical change because a gas (steam) is given off
 - chemical and physical damage

Objective Short Answer

- 11.
- During a physics experiment, an electron is accelerated to 67 percent of the speed of light. What is the speed of the electron in miles per hour? (The speed of light = 3.00×10^8 m/s, 1 km = 0.6214 mi) Show work.

Subjective Short Answer

- 12.
- A 20.0 mL sample of glycerol has a mass of 25.8 g. What is the density of glycerol in ounces/quart? (1.00 ounce = 28.4 g and 1.00 Liter = 1.06 quarts) Show work.

Answer Key

1. d

2. a

3. d

4. c

5. e

6. d

7. b

8. b

9. b

10. b

11. 4.5×10^8 miles/hour

12. 42.9 oz/qt