

PLEASE PRINT NEATLY. I want to give you as much credit as possible, but if it is unclear what the letter or number is, I cannot assume it is correct.

PART 1. FILL IN THE BLANK.

1. What is the definition of a hypothesis? (3 pts.)

2. The state of matter that takes the volume and the shape of its container is the

_____. (2 pts.)

3. What is the definition of a heterogeneous mixture? (2 pts.)

4. Fill in the blanks with the conversion factor.

_____ micrometers = _____ meters (1 pt.)

5. Fill in the blanks with the conversion factor.

_____ milliliters = _____ liter. (1 pt.)

6. Fill in the blanks with the conversion factor. _____ cm = _____ m
(1 pt.)

7. Identify how many significant figures are in each of the following numbers: (1 pt. each)

a) 3.70 _____

b) 50 _____

c) 58,100 _____

d) 0.0040 _____

8. Circle the Last Significant Place (LSP) in each of the following numbers: (1 pt. each)

a) 3.70 _____ b) 50 _____

c) 58,100 _____ d) 0.0040 _____

9. Write the following numbers in Standard Scientific Notation: (1 pt. each)

a) 0.00043 _____ b) 371,000 _____

10. Write the following numbers in “ordinary” decimal form: (1 pt. each)

b) 6.2×10^4 _____ b) 7.13×10^{-3} _____

11. Identify each of the following as measurements of length, area, volume, mass, density, time, or temperature: (1 pt. each)

a) 548 km² _____ b) 8.96 g/mL _____

c) 0.0854 L _____ d) 32 μg _____

e) 43.2 cm³ _____

12. What is the best answer to the following expression? $(85.4 + 35.48) =$ _____
(2 pts.) (Follow significant figure rules.)

13. What is the best answer to the following expression? $(190 - 32) =$ _____
(2 pts.)

14. What is the best answer to the following expression? $(4.58)(0.029) =$ _____
(2 pts.)

15. What is the best answer to the following expression? $\frac{(32.57 - 25.5)}{232.0} =$ _____
(2 pts.)

16. Fill in the element name of the given chemical symbol. (1 pt. each)

a) Rn _____ b) Mn _____

c) Ra _____ d) Fe _____

e) Au _____ f) Sn _____

g) K _____ h) Hg _____

17. Fill in the chemical symbol of the given element name. (1 pt. each)

- a) barium _____ b) hydrogen _____
c) platinum _____ d) argon _____
e) silver _____ f) chromium _____
g) chlorine _____ h) nickel _____

PART 2. PROBLEMS. Show all units. Show all answers to correct significant figures. MUST SHOW ALL WORK. Write numbers and letters legibly. Use exact conversion factors.

18.) $35\text{ }^{\circ}\text{C} = \text{_____ K.}$ (3 pts.)

19.) $35\text{ }^{\circ}\text{C} = \text{_____ }^{\circ}\text{F.}$ (4 pts.)

20.) $52.3\text{ cm} = \text{_____ m}$ (3 pts.)

21.) $52.3\text{ cm} = \text{_____ ft.}$ (4 pts.)

22.) 732 ns = _____ μ s (4 pts.)

23.) A sample is weighed in lab giving 32.259 g, and the volume was measured to be 5.43 mL at 25°C. What is the density of this sample at 25°C? (4 pts.)

24.) Gold has a density of 19.3 g/mL at 25°C. What is the volume of a 15.0 g sample of gold at 25°C? (6 pts)

25.) Lead has a density of 11.3 g/mL at 25°C. What is the mass of a 10.0 mL sample of lead at 25°C? (5 pts)

26.) What is the length of 20.0 feet in meters? (5 pts.)

27.) The density of gold is 19.3 g/mL at 25°C.. What is this density in pounds/gallon at 25°C?
(5 pts.) (1 kg = 2.20 pounds, 1 gallon = 3.79 L)

28.) A fish aquarium holds 50.0 gallons of water. What is this volume in ft³ (cubic feet)?
(6 pts.) (1 gallon = 3.79 L)