

Multiple Choice: Please circle the letter of the correct answer choice. (1 point each)

- 1) Which of the following is an example of a QUALITATIVE piece of data?
 - A. There are 15 variations of that chemical.
 - B. The sample has a mass of 12 grams.
 - ☒ C. The chemical has a high boiling point.

- 2) The scientific method is known as an _____ process because it can be used in multiple directions.
 - A. Itinerant
 - ☒ B. Iterative
 - C. Idiosyncratic

- 3) The unit of length in the S.I. System is the:
 - A. kilometer
 - B. centimeter
 - ☒ C. meter

- 4) The S.I. prefix that relates to the power of ten, 10^{-6} is:
 - ☒ A. micro
 - B. mega
 - C. nano

- 5) Which of the following S.I. units would be best used to express the mass of a paperclip?
 - ☒ A. gram
 - B. liter
 - C. kilogram

True or False: Circle TRUE if the statement is true, Circle FALSE if the statement is false. (1 point each)

- 6) ☒ TRUE or FALSE. The kilogram is the standard S.I. unit for mass.
- 7) ☒ TRUE or FALSE. The metric prefixes can be used with any metric base unit.
- 8) ☒ TRUE or FALSE. One milliliter is equal to one cubic centimeter ($1 \text{ mL} = 1 \text{ cm}^3$)
- 9) TRUE or ☒ FALSE. In the Scientific Method it is unacceptable to go from the EXPERIMENT step to the RESEARCH step.
- 10) ☒ TRUE or FALSE. A measurement of SPECIFIC GRAVITY does not have units.

Short Answer: Answer the following in a phrase or a sentence. (2 points each)

11) Define CHEMISTRY in your own words.

The study of matter and changes to that matter

12) Define MATTER in your own words.

Matter is anything that has mass and Volume

13) Explain how the DEPENDENT VARIABLE is related to the INDEPENDENT VARIABLE in an experiment.

Independent variable is what you changed in the experiment. Dependent variable is how you measure the change

14) Which type of data, QUALITATIVE or QUANTITATIVE, tends to be more convincing and WHY?

Quantitative because it has numbers.

15) What is SPECIFIC GRAVITY and list one way it is USED?

a ratio of a given liquid's density to the density of water used in:

16) What is DIMENSIONAL ANALYSIS ?

a problem solving method that uses units to setup the math

antifreeze levels
batteries (Lead acid)
medicine - urine test.

17) How many significant figures are in the number 1.0089?

5

18) How many significant figures are in the number 0.0034?

2

19) How many significant figures are in the number 1.800

4

Round the following answers to the correct number of Significant Figures. (1 point each)

20) $45.7 + 33.234 + 89.003 = 167.937$

167.9

21) $79.09 \times 65.10 = 5148.759$

5149

Solve the following problems (2 points each) BE SURE TO INCLUDE UNITS!!!

$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$

$^{\circ}\text{C} = (^{\circ}\text{F} - 32)/1.8$

$\text{K} = ^{\circ}\text{C} + 273$

$^{\circ}\text{C} = \text{K} - 273$

22) Convert 78 degrees Fahrenheit to Kelvin

$$(78 - 32) \div 1.8 = 25.55^{\circ}\text{C} + 273 = 298.5\text{K}$$

23) Convert 35 degrees Celsius to Kelvin.

$$35 + 273 = 308\text{K}$$

24) Change 1.56×10^{-6} back into ordinary decimal form

0.00000156

25) Convert 3587 centimeters to kilometers

$$\frac{3587\text{cm}}{1\text{cm}} \times \frac{1 \times 10^{-2}\text{m}}{1\text{cm}} = \frac{35.87\text{m}}{1\text{km}} \times \frac{1\text{km}}{1 \times 10^3\text{m}} = 0.03587\text{km}$$

26) Convert 34.8 liters to milliliters

$$\frac{34.8\text{L}}{1\text{L}} \times \frac{1\text{mL}}{1 \times 10^{-3}\text{L}} = 34800\text{mL}$$

Chemistry CP
Chapter 2 Test

27) Convert 29.7 oz to grams (16 oz = 454 grams)

$$\frac{29.7 \text{ oz}}{16 \text{ oz}} \times \frac{454 \text{ g}}{1} = 842.7375 \text{ g}$$

28) Convert 17.6 cm to inches. (2.54 cm = 1 inch)

$$\frac{17.6 \text{ cm}}{2.54 \text{ cm}} \times \frac{1 \text{ inch}}{1} = 6.929 \text{ inches}$$

29) If a 100.0 gram sample has a volume of 5.18 mL, What is the density of the substance?

$$\frac{100.0 \text{ g}}{5.18 \text{ mL}} = 19.305 \text{ g/mL}$$

30) The density of copper is 8.92 g/mL, if my copper sample has a volume of 10.0 mL what is the mass of this sample?

$$8.92 \text{ g/mL} = \frac{x \text{ g}}{10.0 \text{ mL}} \quad 89.2 \text{ g}$$

31) What volume would 20.0 grams of mercury occupy (density of mercury 13.6 g/mL)?

$$13.6 \text{ g/mL} = \frac{20.0}{x \text{ mL}} \quad 1.470 \text{ mL}$$

Use **DENSITY** to determine the identity of the sample. 2 points

32) Identify the following substance based on its density. A sample of the substance has a mass of 23.5 grams and a volume of 2.24 mL. The possible substances are:

Aluminum-	density 2.70 g/mL
Iron-	density 7.87 g/mL
<u>Silver-</u>	<u>density 10.5 g/mL</u>
Lead-	density 11.34 g/mL

$$\frac{23.5 \text{ g}}{2.24 \text{ mL}} = 10.49 \text{ g/mL}$$

the substance is silver

Place the letter from Column B that correctly corresponds to the Step of the Scientific Method being described in Column A in the column marked "Answer Column".

Answer
Column

Column A

33). G	I go to the library and look up information on germs and how to eliminate them from surfaces.
34). C	Name brand disinfectants such as Lysol will remove germs from surfaces better than non name brand products.
35). A	I look at my data and see if there are any unexpected results, or if there is any information that may have been missed.
36). D	I get sick when I go back to school.
37). H	Using Lysol, and two generic brands A and B, I clean surfaces such as door knobs and desks and then check for germs growth by using swabs and growth media in petri dishes. I compare this to surfaces of the same types that were not cleaned.
38). F	I tell Mr. DeAntonio that the school can save money by using the generic brand B cleaner rather than Lysol cleaner.
39). E	How can I remove germs from the surfaces in school that I touch?
40). B	According to my data, the generic brand B cleaner removed more germs than the other two cleaners and created surfaces that had 75% fewer germs than those surfaces that were not cleaned.

This is worth 8 points, ONE POINT

EACH!

- A. Analyze
- B. Conclusion
- C. Hypothesis
- D. Problem
- E. Question
- F. Report
- G. Research
- H. Test w/ an Experiment