

Multiple Choice: (4 points each. Put answers in left margin as capital letters.)

1. Air is a

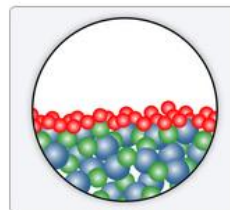
- A) compound  
B) heterogeneous mixture  
C) homogeneous mixture  
D) pure substance  
E) solid

2. Which best describes what happens when molecular compounds melt?

- A) Molecules separate into their component atoms.  
B) Molecules move more slowly.  
C) Molecules arranged in an irregular pattern change to a regular pattern.  
D) Molecules arranged in a regular pattern change to an irregular pattern.  
E) None of these.

3. The following picture is a depiction of a \_\_\_\_\_.

- A) compound  
B) element  
C) heterogeneous mixture  
D) homogeneous mixture



4. Which of the following is a hypothesis?

- A) An academic year is divided into two semesters.  
B) An acre is equal to 4,840 square yards.  
C) Companies with more than \$1 billion in assets spend more than 10% of their annual budget on advertising.  
D) Washington, DC is the capital of the United States of America.  
E) All are hypotheses.

5. How many significant digits are in the answer to the problem  $(2050 + 147.0) + 12$ ?

- A) 1                      B) 2                      C) 3                      D) 4                      E) 5

6. A block has a temperature of 335 °C. What is its temperature in °F?

- A) 168 °F              B) 218 °F              C) 335 °F              D) 571 °F              E) 635 °F

7. The key to successfully employing the dimensional-analysis method of problem solving is

- A) choosing the best value from the given information to start solving the problem.  
B) estimating the answer before beginning to set up the solution.  
C) keeping track of significant figures throughout the problem.  
D) keeping track of units throughout the problem.

8. Which of the following is a metalloid?  
A) Al                      B) Cl                      C) P                      D) S                      E) Si
9. Which of the following elements should have the lowest density?  
A) chlorine              B) neon                      C) lithium              D) potassium              E) sulfur
10. Which of the following properties is not typically associated with metals.  
A) brittleness                      C) ductile                      E) malleability  
B) dense                      D) gray color

Discussion Questions: (**You must show your work to receive credit.**)

1. Define: (5 points each)  
transition elements (provide locations) –  
  
compound –  
  
density –

Fill-in-the-blanks (5 points each)

1270 in scientific notation: \_\_\_\_\_

One nanoliter equals  $10^x$  liters.  $x =$  \_\_\_\_\_

Provide an English/metric conversion factor for **volume**: \_\_\_\_\_

In the modern periodic table, the columns of elements are called \_\_\_\_\_.

The atomic symbol for chlorine is \_\_\_\_\_

**Ozempic®/Rybelsus®** are the tradenames of the chemical semaglutide. This medication has generated a great deal of interest lately because of its effectiveness as a weight loss drug. Each molecule of it is comprised of 187 atoms of carbon, 291 hydrogen atoms, 45 nitrogen atoms, and 65 oxygen atoms. What is its formula? \_\_\_\_\_

Show your work problems (5 points each)

1. Briefly, how do a hypothesis and theory differ?
2. Convert 4.11 kg to the equivalent quantity in milligrams.
3. Convert 4.11 kg to the equivalent quantity in pounds.
4. Convert 78.0 °C to K.