DIA 2 Review

Name: _____ Date: _____ Period: _____

1. What is the building block of all matter?

2. Complete the table below.

Element	Molecule	Compound
Definition:	Definition:	Definition:
Drawing:	Drawing:	Drawing:

3. How are elements and compounds the same? How are they different?

4. Define a pure substance.

5. True or false: elements and compounds are pure substances.

6. Name the connection between two atoms. How is this connection made?

7. Circle the following that are elements and put a box around the ones that are compounds.

H_2 CO_2 BF_3 O_2 H_2O $4K_2SO_4$ $6He$

8. Which of the ones below can be broken down <u>physically</u>?
   A. element
   B. Mixture
   C. Compound

9. Which of the ones below can be broken down <u>chemically</u>?
   A. Element
   B. Mixture
   C. Compound

10. Which of the ones below cannot be broken down chemically or physically?
    A. Element
    B. Mixture
    C. Compound

11. Draw examples of a homogenous and heterogeneous mixture in the boxes below:

Homogenous Mixture	Heterogeneous Mixture

12. What are the 2 parts of a solution (described on your Unit 3 review paper under number 3).

13. What kind of mixture is a solution, heterogeneous or homogeneous? Give an example of a solution.

14. List out step-by-step how you would separate the following mixture: *Iron filings (small pieces of magnetic metal), sugar, marbles*
    Note: At the end of the separation all pieces of the mixture should be separate.

15. What does the pH scale measure?

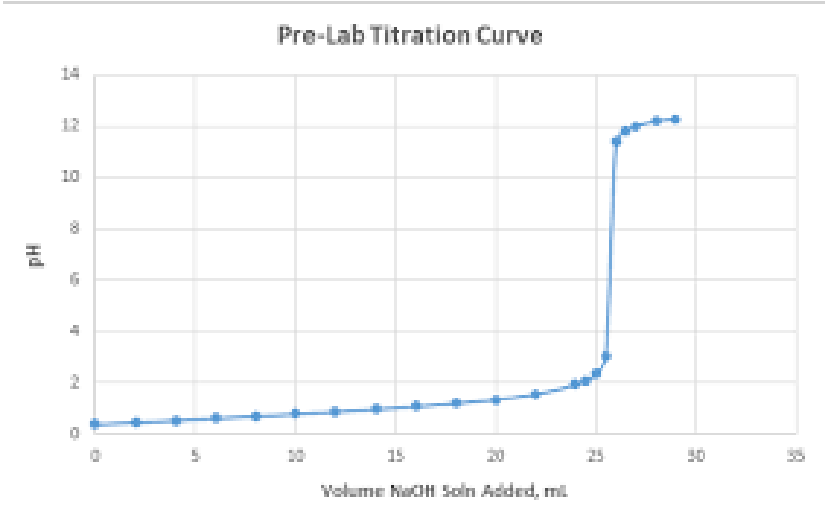
16. A) Draw out the pH scale using the following benchmarks: 0, 7, 14, acidic, alkaline (basic), neutral

    B) on your pH scale add the following items:

stomach acid pH of 1	Vinegar pH of 2	Milk pH of 6
Soapy water pH of 12	Lemon juice pH of 2	Baking soda pH of 8
Orange juice pH of 3	Water pH of 7	Hand soap pH of 10

17. Rewrite the following list of substances in order from highest to lowest pH:
Tomato juice pH of 4 Blood pH of 7 Stomach acid pH of 1 Baking soda pH of 8

18.



a) What is the starting pH of the solution?
b) What is the ending pH of the solution?
c) What was added to the solution, acid or base, to make the change in pH as shown in the graph?

19. What do acids and bases form when they combine? How do they do this? (hint: look at the unit 3 review under standard number 5: cite common examples of acids, bases and salts)

20. The compounds KCL (potassium chloride), LiCl (lithium chloride), NaCl (sodium chloride) and $CaSO_4$ (Calcium Sulfate) are examples of what?

21. Carbon dioxide in the air can dissolve into water to form what? When it dissolves into the water has it formed a mixture? If so, what kind of mixture?

22. Barney is doing a science fair project in which he tests the ability of different balls to bounce. He sets up his experiment on the cafeteria floor near the wall, where he puts a measuring tape. He then bounces a golf ball, baseball, soccer ball, ping pong ball and tennis ball each ten times and records the height of each bounce.

<u>In this experiment, what is the:</u>

a. Dependent variable-

c. Independent variable-

b. Constants-

d. Control-

e. How does Barney demonstrate repetition in this experiment?

f. How could he demonstrate replication with this experiment?

23. What makes an experiment valid and reliable?

24. For the following science experiment headlines state the independent variable and dependent variable:

a) Is a Heartbeat Affected By Music?

b) How Do Changes In Temperature Affect Power Generated By Solar Cells?

25. Place an "x" in the appropriate box for each substance.

Substance	**Element**	**Compound**	**Mixture**
Sand			
Iron			
Milk			
Soil			
Water			
Oxygen			
Gold			
Salad dressing			
Salt water			