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Date: _____

Mod: _____

Review Sheet Chapter 1B

Pages 21-40

1. When gasoline and water are mixed, they form 2 distinct layers with gasoline on the top. What can you tell about the density of gasoline?

gas is less dense than water

2. Use the following information to determine the density of the substance:

Mass of unknown liquid = 13.79 g

Volume of unknown = 17.6 mL

$$\text{Density} = \frac{m}{V} = \frac{13.79g}{17.6 \text{ mL}} = .784 \text{ g/mL}$$

Would this liquid float or sink if placed in a graduated cylinder with water?

YES

3. Determine the volume of the following solid:

Mass = 624.4 g

Density = 8.89 g/cm³

> 1 = 5.5 mL

$$V = \frac{m}{D} = \frac{624.4g}{8.89 \text{ g/cm}^3} = 70.2 \text{ cm}^3$$

Would this solid float or sink if placed in water?

Sink

4. Determine the density of the following irregular solid:

Water in a graduated cylinder = 61 mL

Water in the graduated cylinder plus the solid = 67 mL

Mass of the solid = 18.1 g

$$\text{Volume} = 67 \text{ mL} - 61 \text{ mL} = 6 \text{ mL}$$

$$\text{Density} = \frac{M}{V} = \frac{18.1g}{6 \text{ mL}} = 3.0 \text{ g/mL}$$

Would this solid float or sink if placed in water?

Sink

5. Use the following information to determine the density of the substance:

Mass of empty graduated cylinder = 43.55 g

Mass of graduated cylinder with liquid = 57.34 g

Volume of liquid = 17.6 mL

$$\text{Density} = \frac{M}{V} = \frac{13.79g}{17.6 \text{ mL}} = .784 \text{ g/mL}$$

$$\begin{array}{r} \text{mass} = 57.34g \\ - 43.55g \\ \hline 13.79g \end{array}$$

Would this liquid float or sink if placed in a graduated cylinder with water?

Float

6. Does ice have a higher or lower density than liquid water? Why is this information important for aquatic animal and plant life?

ponds will freeze on the top and aquatic life can live below the ice surface

7. What is "surface tension"?

the force that causes the surface of a liquid to contract
List clear signs that water has a high amount of surface tension.

- You can fill a glass above the rim
- You can float a needle on the surface of water

8. Identify the following substances as either a suspension, solution or colloid.

- Rubbing alcohol used to clean cuts
How do you know?

solution

homogeneous mixture, no Tyndall effect

- A blue liquid that has no cloudiness.
How do you know?

solution

homogeneous mixture, no Tyndall effect

- Italian salad dressing
How do you know?

suspension - you have to shake before using

the various ingredients separate upon standing

- River water that stays slightly "murky" even after several days of sitting
How do you know?

colloid

Tyndall effect

9. Determine whether or not each substance below is an element, a compound, a solution or a mixture.

- Carbon dioxide (CO₂)

Compound

- Gold (Au)

Element

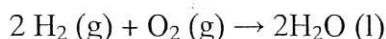
- CuCl₂ completely dissolved in water

solution

- Italian salad dressing

Mixture

10. Use the following equation:



- What is (are) the reactant(s) in the equation?

H₂ and O₂

- What is (are) the product(s) in the equation?

H₂O

- What does the 2 in front of H₂ and H₂O tell you?

Two molecules of H₂ and H₂O

Milk = Mixture & Colloid

11. Give the name of each element and number of atoms of each element present in the following chemical formulas:

• Phosphoric acid, H_3PO_4 (used in soft drinks) $H=3$ $P=1$ $O=4$

• Sodium hydroxide, $NaOH$ (found in some drain cleaners)

$Na=1$ $O=1$ $H=1$

• Sulfur dioxide, SO_2 (a by-product of burning some types of coal)

$S=1$ $O=2$

12. Water is sometimes known as the universal solvent. Why do you think it was given this name?

water dissolves many substances

13. Why are solutions also considered to be homogeneous mixtures?

they are the same throughout

14. What unusual thing happens when ionic compounds like $NaCl$ (table salt) and $CaCl_2$ (road salt) dissolve in water?

these compounds separate into ions and dissolve.

15. If a molecule is polar, does that mean that the charge is evenly spread out around the molecule, or is there more negative charge in one part of the molecule than the other part?

more negative on one part, more positive on another part.

16. A substance called benzene dissolves well in oil based solvents, but not in water. Is benzene a polar molecule or a nonpolar molecule? **Explain.**

Nonpolar molecule

Like
Dissolves

Remember your vocabulary words!

Like

Unlike does not dissolve.

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