

Chapter 3 Review Sheet

Matter

Name _____

1. Which of the following properties below is/are physical properties, and which are chemical properties?

_____ a. Oxygen atoms can combine with hydrogen atoms to form water molecules.

_____ b. Ethyl alcohol boils at 78°C.

_____ c. Liquid oxygen is pale blue in color.

2. Which of the changes below are physical changes, and which are chemical changes?

_____ a. A copper strip is hammered flat to make a bracelet.

_____ b. Copper and sulfur react to form a new substance, copper(I) sulfide.

_____ c. Liquid water freezes at 273 K.

_____ d. Oxygen gas condenses to a liquid at -183°C.

_____ e. You prepare an 11 minute egg for breakfast.

3. Which of the symbols below represent elements, and which represent compounds?

_____ a. S

_____ b. H₂O

_____ c. C

_____ d. N₂O₅

_____ e. NaOH

4. Is each of the properties below a physical or chemical property?

_____ a. temperature at which a solid is converted to a liquid

_____ b. odor

_____ c. temperature at which a compound breaks down into its elements

_____ d. oxygen reacts with a substance to produce energy

5. Which of the substances below are mixtures, and which are pure substances?

_____ a. gasoline

_____ b. table sugar (sucrose)

_____ c. garden soil

_____ d. sterling silver necklace

6. Which of the mixtures is homogeneous and which is heterogeneous?

_____ a. sweetened tea

_____ b. plastic bag filled with leaves and grass clippings

_____ c. a weak solution of rubbing alcohol in water

_____ d. chocolate chip cookie dough

7. Describe how you can separate a mixture by filtration.

8. What type of mixture is best separated by filtration: homogenous or heterogeneous?

9. **Describe how** you would separate the following mixtures.

a. sand from gravel _____

b. salt from sand _____

c. sugar from water _____

10. When liquid nitrogen boils at -196°C is this a physical or chemical change? _____

11. Does KI represent a compound or an element? _____

12. Is the color of a substance a physical property or a chemical property? _____
Is this an intensive or extensive property? _____

13. Is a 14 K gold ring a mixture or a pure substance? _____

14. What kind of mixture is a box of Raisin Bran Cereal? _____
15. Why is filtration NOT a good way to separate sugar from the tea in sweetened tea?
16. If one liquid boils at a temperature of 118 °C and a second liquid boils at 68°C is it likely that a mixture of the two can be separated by distillation? Explain your answer.
17. Explain the difference between homogeneous and heterogeneous in terms of phases and composition.