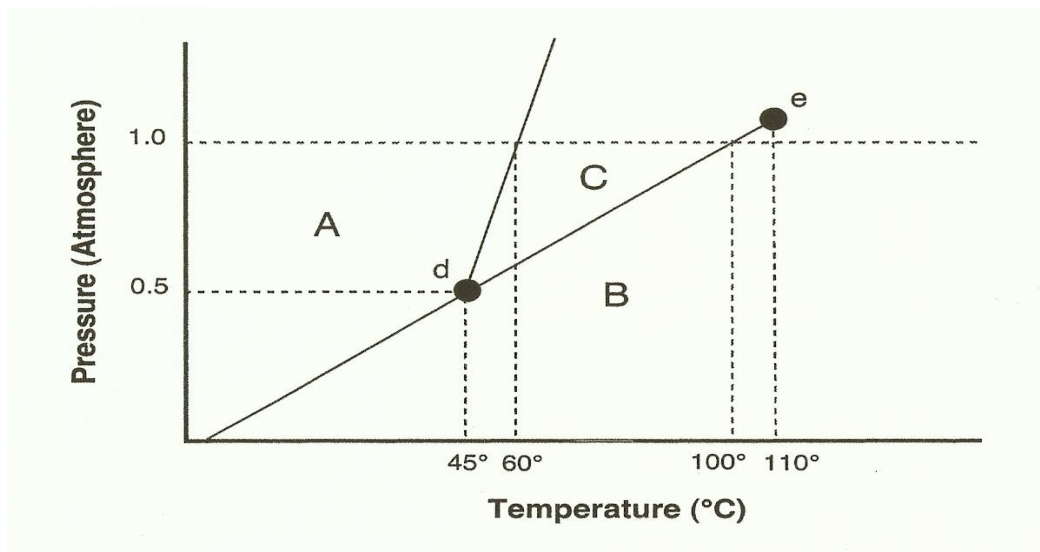


Name \_\_\_\_\_ Date \_\_\_\_\_

## Phase Diagrams

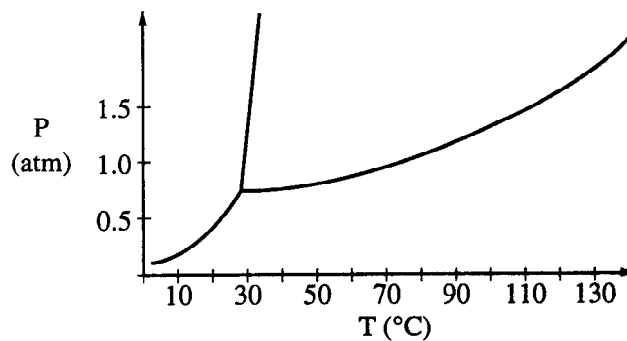
**Directions:** Answer the questions by using the phase diagram below.

1. Which section represents the solid phase? \_\_\_\_\_
2. What section represents the liquid phase? \_\_\_\_\_
3. What section represents the gas phase? \_\_\_\_\_
4. What letter represents the triple point? \_\_\_\_\_ In your own words, what is the definition of a triple point?
5. What is this substance's melting point at 1 atmosphere of pressure? \_\_\_\_\_
6. What is this substance's boiling point at 1 atmosphere of pressure? \_\_\_\_\_
7. Above what temperature is it impossible to liquefy this substance, no matter what the pressure? \_\_\_\_\_
8. At what temperature and pressure do all three phases coexist? \_\_\_\_\_
9. At a constant temperature, what would you do to cause this substance to change from the liquid phase to the solid phase? \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

For questions 10- 12, refer to the phase diagram below of a pure substance. Use A-E as your answer choices.

- (A) Sublimation
- (B) Condensation
- (C) Vaporization
- (D) Melting
- (E) Deposition



10. If the pressure decreases from 1.5 to 0.5 atmospheres at a constant temperature of 50°C, which of the processes occurs?
11. If the temperature increases from 10°C to 50°C at a constant pressure of 0.5 atmospheres, which of the processes occurs?
12. If the temperature decreases from 110°C to 40°C at a constant pressure of 1.1 atmospheres, which of the processes occurs?

Name \_\_\_\_\_ Date \_\_\_\_\_

### Word Equations

**Directions:** Write the following word equations as chemical reactions. Classify the reactions. You do NOT need to balance these.

1. Zinc and lead (II) Nitrate yield zinc nitrate and lead.

Rxn Type: \_\_\_\_\_

2. Aluminum bromide and chlorine produce aluminum chloride and bromine

Rxn Type: \_\_\_\_\_

3. Methane (CH<sub>4</sub>) and oxygen gas react to produce carbon dioxide and water.

Rxn Type: \_\_\_\_\_

4. Calcium hydroxide and phosphoric acid yield calcium phosphate and water.

Rxn Type: \_\_\_\_\_

5. Hydrogen and nitrogen monoxide yield water and nitrogen gas.

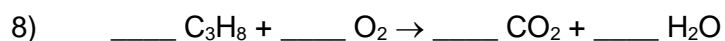
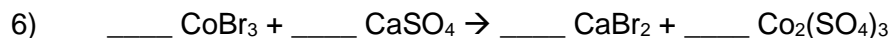
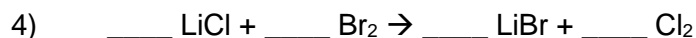
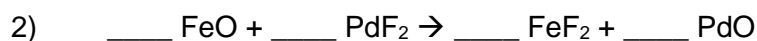
Rxn Type: \_\_\_\_\_

6. Potassium chlorate separates into potassium chloride and oxygen gas.

Rxn Type: \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

## Balancing Equations

**Directions:** Balance the following equations*Balance these equations!***Directions:** Write these equations from words. Be sure to also balance them.

9) Nitrogen plus hydrogen produce ammonia. (Remember diatomic elements!)

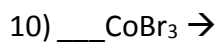
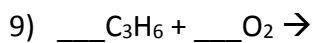
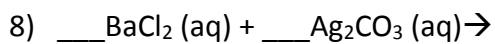
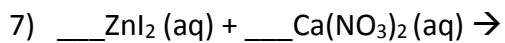
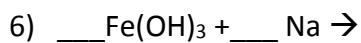
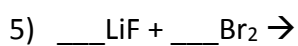
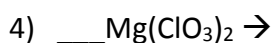
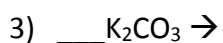
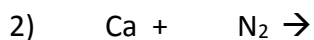
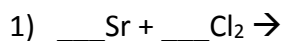
10) Lithium oxide combines with water to form Lithium hydroxide.

11) Sodium sulfate reacts with calcium nitrate to produce sodium nitrate and calcium sulfate.

Name \_\_\_\_\_ Date \_\_\_\_\_

**Predicting Products in Chemical Reactions**

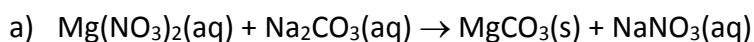
**Directions:** Predict the products for the following reactants. After you predict the products balance the equation. It may be helpful to determine the type of reaction first. Hint: Use your reference table to help you.



Name \_\_\_\_\_ Date \_\_\_\_\_

**Chemical Reaction Fun****Directions:** Answer the following questions by choosing the best answer choice.

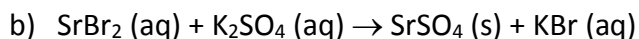
- To balance a chemical equation you may adjust the \_\_\_\_\_.  
a) formulas      b) coefficients      c) number of reactants      d) subscripts
- The type of reaction that only has one product is classified as \_\_\_\_\_.  
a) Combustion      b) decomposition      c) single replacement      d) synthesis
- When the reaction below is correctly balanced what is the coefficient in front of the unbonded Fe?  
$$\text{Al} + \text{Fe}_2\text{O}_3 \rightarrow \text{Fe} + \text{Al}_2\text{O}_3$$
  
a) 1      b) 2      c) 3      d) 4
- Chemical equations must be balanced to satisfy the \_\_\_\_\_.  
a) Law of multiple proportions      c) Law of conservation of energy  
b) Law of conservation of mass      d) Law of Avogadro
- Which of the following compounds is soluble in water?  
a) AgCl      b) Ba(OH)<sub>2</sub>      c) MgO      d) PbCl<sub>3</sub>
- In the chemical equation,  $\text{H}_2\text{O}_2(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$ , the  $\text{H}_2\text{O}_2$  is a \_\_\_\_\_.  
a) catalyst      b) product      c) reactant      d) gas

**Directions:** Write the complete ionic equation, net ionic equation, and spectator ions for the equations below.

Complete \_\_\_\_\_

Net: \_\_\_\_\_

Spectator Ions: \_\_\_\_\_



Complete \_\_\_\_\_

Net: \_\_\_\_\_

Spectator Ions: \_\_\_\_\_