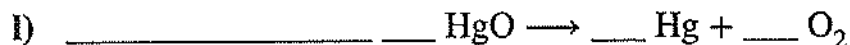
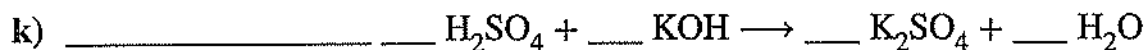
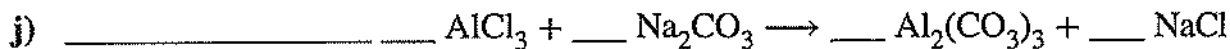
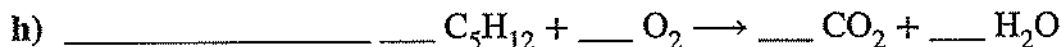
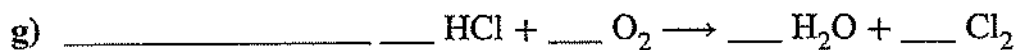
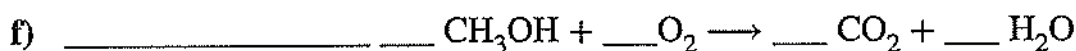
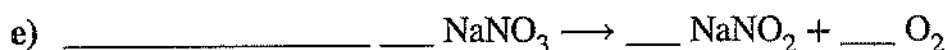
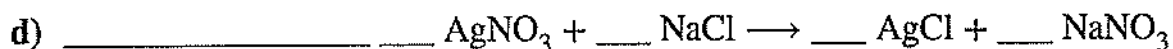
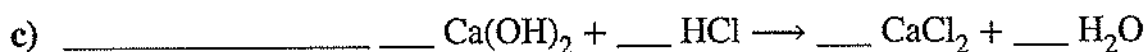
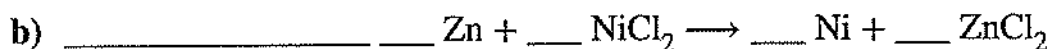


Classifying Chemical Reactions*Use with textbook pages 156-172.*

1. Classify each of the following reactions as synthesis, decomposition, single replacement, double replacement, combustion, or neutralization. Then balance the chemical equation by placing the correct coefficients in the equation. For equations that are already balanced, write "already balanced."



2. Rewrite the following sentences as chemical word equations. Write the skeleton equation, classify the chemical reaction, and then balance it.

- a) Gaseous iodine monochloride when exposed to heat forms two diatomic gases, iodine and chlorine.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- b) Solid iodine and an aqueous solution of sodium bromide are formed when liquid bromine is added to a container of sodium iodide crystals.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- c) An electrical charge triggers the breakdown of solid sodium azide (NaN_3) to form sodium metal and nitrogen gas. (This is the reaction that inflates airbags in motor vehicles.)

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- d) The burning of white crystalline naphthalene (C_{10}H_8) in air produces carbon dioxide, water, and heat.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- e) Phosphoric acid (H_3PO_4) reacts with barium hydroxide to form an insoluble solid of barium phosphate and water.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- f) A precipitate of iron(III) sulfide forms in a solution of magnesium nitrate when aqueous iron(III) nitrate and magnesium sulfide are mixed in a beaker.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- g) At room temperature, aqueous tin(IV) hydroxide is poured into a hydrogen bromide solution to produce water and aqueous tin(IV) bromide.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- h) When a solution of sodium carbonate is added to a solution of aluminum chloride, solid aluminum carbonate forms in a sodium chloride solution.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- i) Gaseous nitrous oxide, which is also known as dinitrogen monoxide, breaks down to form nitrogen and oxygen.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- j) Iron filings react slowly with purple iodine fumes to form brown iron(II) iodide fumes.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- k) The reaction of solid glucose ($C_6H_{12}O_6$) and oxygen in cellular respiration produces carbon dioxide, water, and energy that is essential for all life processes.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- l) A chromium strip is immersed in a solution of tin(IV) chloride to form solid tin in a chromium(III) chloride solution.

Word equation: _____

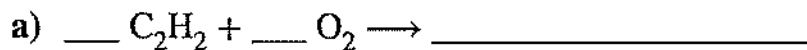
Type of reaction: _____

Balanced equation: _____

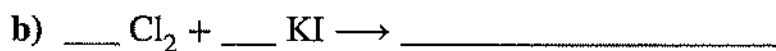
Predicting Products

Use with textbook pages 173-174.

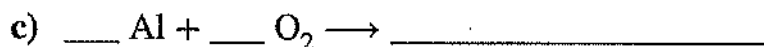
1. Complete the skeleton equations by predicting the products. Classify the reaction as synthesis, decomposition, single replacement, double replacement, neutralization, or combustion. Then balance the equation.



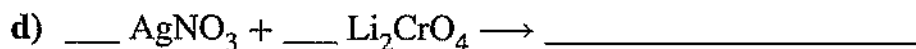
Type of reaction: _____



Type of reaction: _____



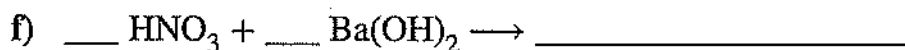
Type of reaction: _____



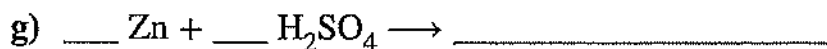
Type of reaction: _____



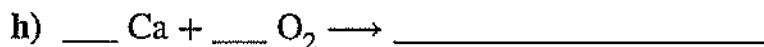
Type of reaction: _____



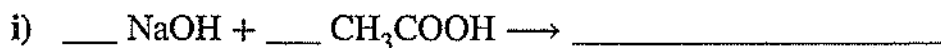
Type of reaction: _____



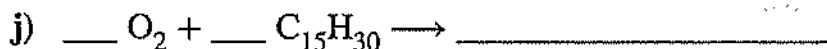
Type of reaction: _____



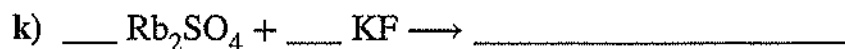
Type of reaction: _____



Type of reaction: _____



Type of reaction: _____



Type of reaction: _____



Type of reaction: _____

2. For each of the following descriptions, predict the products and write a word equation. Classify the reaction type and write out a balanced equation for each word equation.

- a) Aqueous hydrogen carbonate, more commonly known as carbonic acid, is found in carbonated beverages and produces bubbles in fizzy drinks.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- b) Fluorine gas is pumped into a solution of potassium chloride.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- c) A solution of lead(II) chlorate is poured into a potassium iodide solution.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- d) A small piece of sodium is added to a container filled with iodine vapour.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- e) Liquid benzene (C_6H_6) explodes on contact with oxygen gas in air.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- f) Two aqueous solutions, ammonium hydroxide and hydrogen chloride, react.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- g) A pea-sized sample of a red violet cobalt(II) bromide crystal is heated.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- h) When aluminum and iron(III) oxide are exposed to heat, they ignite and burn.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- i) Hydrogen and oxygen gas are combined and reacted.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- j) Five drops of lithium sulfate are added to a test tube containing barium chloride.

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- k) Aluminum hydroxide is an antacid that reacts with gastric juice (HCl) to help relieve acid reflux ("heartburn").

Word equation: _____

Type of reaction: _____

Balanced equation: _____

- l) A lighter is used to start the reaction between oxygen and propane gas (C_3H_8) in a barbecue.

Word equation: _____

Type of reaction: _____

Balanced equation: _____