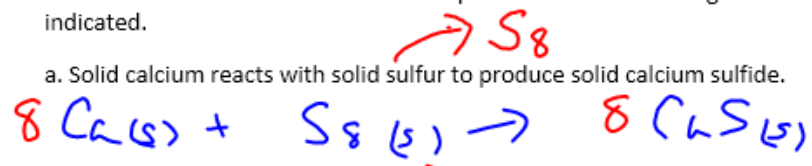


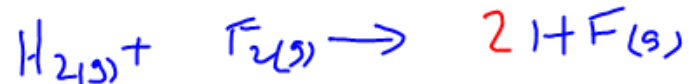
Chapter 8 Homework / Test Question Pool / Practice Problems / Section Review Questions

1. Write word and balanced chemical equations for the following reactions. Include symbols for physical states when indicated.

a. Solid calcium reacts with solid sulfur to produce solid calcium sulfide.



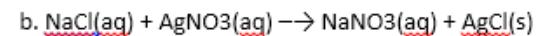
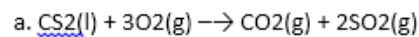
b. Hydrogen gas reacts with fluorine gas to produce hydrogen fluoride gas. (Hint: See Table 1.)



c. Solid aluminum metal reacts with aqueous zinc chloride to produce solid zinc metal and aqueous aluminum chloride.



2. Translate the following chemical equations into sentences:

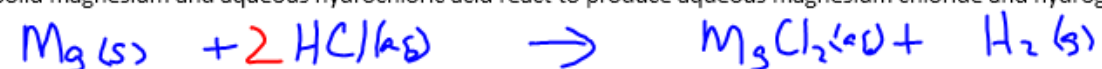


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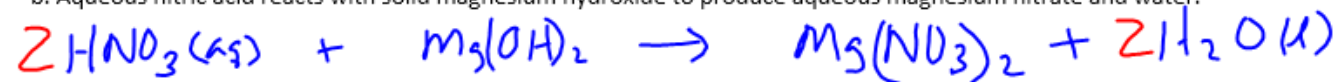
PP p 272

1. Write word, formula, and balanced chemical equations for each of the following reactions:

a. Solid magnesium and aqueous hydrochloric acid react to produce aqueous magnesium chloride and hydrogen gas.



b. Aqueous nitric acid reacts with solid magnesium hydroxide to produce aqueous magnesium nitrate and water.



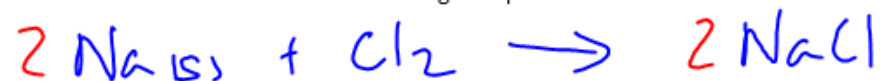
2. Solid calcium metal reacts with water to form aqueous calcium hydroxide and hydrogen gas. Write a balanced chemical equation for this reaction.



Chapter 8 PP 274

1. Write balanced chemical equations for each of the following reactions:

a. Solid sodium combines with chlorine gas to produce solid sodium chloride.



b. When solid copper reacts with aqueous silver nitrate, the products are aqueous copper(II) nitrate and solid silver.



c. In a blast furnace, the reaction between solid iron(III) oxide and carbon monoxide gas produces solid iron and carbon dioxide gas.



3

Chapter 8 Homework - Word

FILE HOME INSERT DESIGN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW

Robert H. Venner

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Chapter 8 Section Review 274

- Describe the differences between word equations, formula equations, and chemical equations.
- Write word and formula equations for the reaction in which aqueous solutions of sulfuric acid and sodium hydroxide react to form aqueous sodium sulfate and water.

$$\text{H}_2\text{SO}_4(\text{aq}) + 2 \text{NaOH}(\text{aq}) \longrightarrow \text{Na}_2\text{SO}_4(\text{aq}) + 2 \text{H}_2\text{O}(\text{l})$$
- Translate the following chemical equations into sentences:
 - $2\text{K}(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \longrightarrow 2\text{KOH}(\text{aq}) + \text{H}_2(\text{g})$
 - $2\text{Fe}(\text{s}) + 3\text{Cl}_2(\text{g}) \longrightarrow 2\text{FeCl}_3(\text{s})$
- Write the word, formula, and chemical equations for the reaction between hydrogen sulfide gas and oxygen gas that produces sulfur dioxide gas and water vapor.

$$2 \text{H}_2\text{S}(\text{g}) + 3 \text{O}_2(\text{g}) \longrightarrow 2 \text{SO}_2(\text{g}) + 2 \text{H}_2\text{O}(\text{g})$$
- INTEGRATING CONCEPTS The reaction of vanadium(II) oxide with iron(III) oxide results in the formation of vanadium(V) oxide and iron(II) oxide. Write the balanced chemical equation.

$$2 \text{VO} + 3 \text{Fe}_2\text{O}_3 \longrightarrow \text{V}_2\text{O}_5 + 6 \text{FeO}$$

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Chapter 8 Homework - Word

Robert H. Venner

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Chapter 8 Section Review 284

1. List five types of chemical reactions.

- 1.
- 2.
- 3.
- 4.
- 5.

2. Classify each of the following reactions as a synthesis, decomposition, single-displacement, double-displacement, or combustion reaction:

a. $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$ *Combination / synthesis*

b. $2\text{Li}(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \rightarrow 2\text{LiOH}(\text{aq}) + \text{H}_2(\text{g})$ *Single displacement*

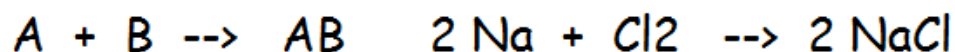
c. $2\text{NaNO}_3(\text{s}) \rightarrow 2\text{NaNO}_2(\text{s}) + \text{O}_2(\text{g})$ *DECOMPOSITION*

d. $2\text{C}_6\text{H}_{14}(\text{l}) + 19\text{O}_2(\text{g}) \rightarrow 12\text{CO}_2(\text{g}) + 14\text{H}_2\text{O}(\text{l})$ *COMBUSTION*

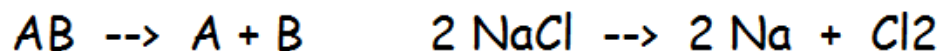
PAGE 4 OF 8 793 WORDS 100%

5 Types of Chemical Reactions

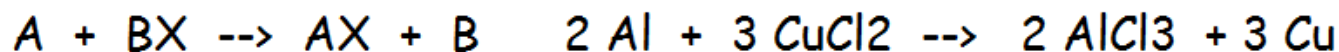
1. Synthesis / Combination



2. Decomposition

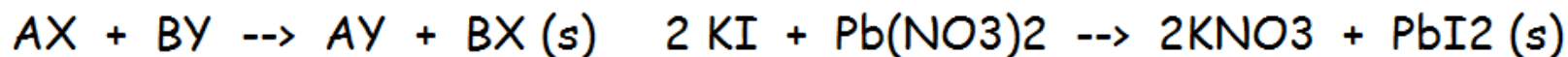


3. Single Displacement



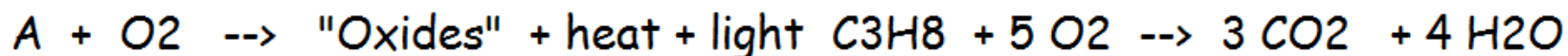
THINK: ACTIVITY SERIES p.286

4. Double Displacement



THINK: 1. Precipitate or 2. Gas or 3. Molecule (H₂O) Solubility Tables p. 860

5. Combustion

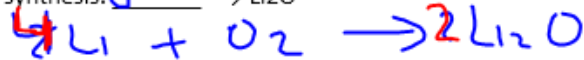


6

Section Review cont'd

3. For each of the following reactions, identify the missing reactant(s) or products(s) and then balance the resulting equation. Note that each empty slot may require one or more substances.

a. synthesis: Li → Li₂O



b. decomposition: Mg(ClO₃)₂ → MgCl₂ + 3O₂

c. double displacement: 2 HNO₃ + Ca(OH)₂ → Ca(NO₃)₂ + 2 H₂O

d. combustion: C₅H₁₂ 8 O₂ → 5CO₂ + 6H₂O

4. For each of the following reactions, write the missing product(s) and then balance the resulting equation. Identify each reaction by type.

a. Br₂ + 2 KI → 2KBr + I₂ Single Displacement

b. 2 NaClO₃ + heat → 2NaCl + 3O₂ DECOMPOSITION

c. 2 C₇H₁₄ + 21 O₂ → 14CO₂ + 14H₂O COMBUSTION

d. CuCl₂ + Na₂S → 2NaCl + CuS Double Displacement

Critical Thinking 5. INFERRING RELATIONSHIPS In an experiment, an iron sample is oxidized to iron(III) oxide by oxygen, which is generated in the thermal decomposition of potassium chlorate. Write the two chemical reactions in the correct sequence.



Chapter 8 Homework - Word

Robert H. Venner

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Chapter 8 PP 287

1. Using the activity series shown in Table 3, predict whether each of the possible reactions listed below will occur. For the reactions that will occur, write the products and balance the equation.

a. $\text{Cr(s)} + \text{H}_2\text{O(l)} \rightarrow$ NR cold H₂O: steam, yes

b. $\text{Pt(s)} + \text{O}_2\text{(g)} \rightarrow$ NR

c. $\text{Cd(s)} + 2\text{HBr(aq)} \rightarrow$ $\text{CdBr}_2 + \text{H}_2$

d. $\text{Mg(s)} + \text{steam} \rightarrow$ $\text{Mg(OH)}_2 + \text{H}_2$
2H₂O

2. Identify the element that replaces hydrogen from acids but cannot replace tin from its compounds. 3. According to Table 3, what is the most-active transition metal?

a) Pb

b) Mn

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