## REVIEW

5

## SECTION 5.3

## **Balancing Chemical Equations**

1. Balance the following equations:

a.  $N_2O_5 + H_2O \rightarrow HNO_3$ 

**b.**  $Fe(OH)_3 \rightarrow Fe_2O_3 + H_2O$ 

c.  $Fe + O_2 \rightarrow Fe_2O_3$ 

**d.** Al + CuSO<sub>4</sub>  $\rightarrow$  Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> + Cu

e.  $NaCl + H_2SO_4 \rightarrow Na_2SO_4 + HCl$ 

**2. Determine** the mole ratio for the following reaction: carbon and oxygen react to form carbon monoxide, CO.

3. **Determine** the number of moles of sodium hydroxide, NaOH, produced when 2 mol of sodium and 3 mol of water react to form sodium hydroxide and hydrogen gas,  $\rm H_2$ .

**4. Calculate** the mass of carbon monoxide, CO, that was needed to produce 78 g of methanol,  $CH_3OH$ , by the following reaction:  $2H_2 + CO \rightarrow CH_3OH$ .

**5. Demonstrate** that the following chemical equation illustrates the conservation of mass in chemical reactions:  $3NaOH + H_3PO_4 \rightarrow Na_3PO_4 + 3H_2O$ 

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