## Oxidation-reduction Worksheet

For each of the following, identify the atom oxidized, the atom reduced, the oxidizing agent, and the reducing agent.

1. 2Fe + 
$$3V_2O_3 \rightarrow Fe_2O_3 + 6VO$$

2. 4Fe + 
$$3O_2 \rightarrow 2Fe_2O_3$$

3. 
$$2KMnO_4 + 5KNO_2 + 3H_2SO_4 \rightarrow 2MnSO_4 + 3H_2O + 5KNO_3 + K_2SO_4$$

4. 
$$K_2Cr_2O_7 + 3SnCl_2 + 14HCl \rightarrow 2CrCl_3 + 3SnCl_4 + 2KCl + 7H_2O$$

5. 
$$3H_2C_2O_4 + 2K_2MnO_4 \rightarrow 6CO_2 + 2K_2O + Mn_2O_3 + 3H_2O$$

6. 
$$3Mg + N_2 \rightarrow Mg_3N_2$$

7. 
$$8KClO_3 + C_{12}H_{22}O_{11} \rightarrow 8KCl + 11H_2O + 12CO_2$$

8. 
$$2HNO_3 + 6HI \rightarrow 2NO + 3I_2 + 4H_2O$$

## Oxidation-reduction Worksheet

## Answers

1. 2Fe + 
$$3V_2O_3 \rightarrow Fe_2O_3 + 6VO$$

Atom Oxidized/Reducing Agent = Fe

Atom Reduced/Oxidizing Agent = V

2. 4Fe + 
$$3O_2 \rightarrow 2Fe_2O_3$$

Atom Oxidized/Reducing Agent = Fe

Atom Reduced/Oxidizing Agent = O

3. 
$$2KMnO_4 + 5KNO_2 + 3H_2SO_4 \rightarrow 2MnSO_4 + 3H_2O + 5KNO_3 + K_2SO_4$$

Atom Oxidized/Reducing Agent = N Atom Reduced/Oxidizing Agent = Mn

4. 
$$K_2Cr_2O_7 + 3SnCl_2 + 14HCl \rightarrow 2CrCl_3 + 3SnCl_4 + 2KCl + 7H_2O$$

Atom Oxidized/Reducing Agent = Sn Atom Reduced/Oxidizing Agent = Cr

5. 
$$3H_2C_2O_4 + 2K_2MnO_4 \rightarrow 6CO_2 + 2K_2O + Mn_2O_3 + 3H_2O$$

Atom Oxidized/Reducing Agent = C Atom Reduced/Oxidizing Agent = Mn

6. 
$$3Mg + N_2 \rightarrow Mg_3N_2$$

Atom Oxidized/Reducing Agent = Mg Atom Reduced/Oxidizing Agent = N

7. 
$$8KClO_3 + C_{12}H_{22}O_{11} \rightarrow 8KCl + 11H_2O + 12CO_2$$

Atom Oxidized/Reducing Agent = C Atom Reduced/Oxidizing Agent = Cl

8. 
$$2HNO_3 + 6HI \rightarrow 2NO + 3I_2 + 4H_2O$$

Atom Oxidized/Reducing Agent = I

Atom Reduced/Oxidizing Agent = N