Name: _____ Date: _____

Types of Chemical Reactions (Part II): Single and Double Displacement

For each of the chemical reactions listed below, complete the following:

- 🕮 The type of chemical reaction (single or double displacement)
- ✎ Balance the skeletal equation

1. Sulphuric acid reacts with iron (II) sulphide to produce iron (II) sulphate and hydrogen sulphide.
   - 🕮 Reaction type: double displacement
   - ✎ Balance the skeletal equation: ____ H_2SO_4 + ____ FeS → ____ $FeSO_4$ + ____ H_2S
2. An alkali metal such as sodium displaces hydrogen from water to form sodium hydroxide and hydrogen gas.
   - 🕮 Reaction type: single displacement
   - ✎ Balance the skeletal equation: 2 Na + 2 H_2O → 2 NaOH + ____ H_2
3. Valuable silver can be recovered from a solution of silver nitrate by adding copper to produce copper (II) nitrate and a silver precipitate.
   - 🕮 Reaction type: single displacement
   - ✎ Balance the skeletal equation: 2 $AgNO_3$ + ____ Cu → ____ $Cu(NO_3)_2$ + 2 Ag
4. If we were to add table salt to a solution of silver nitrate we would produce sodium nitrate solution and silver chloride.
   - 🕮 Reaction type: double displacement
   - ✎ Balance the skeletal equation: ____ NaCl + ____ $AgNO_3$ → ____ $NaNO_3$ + ____ AgCl
5. Potassium iodide reacts with lead (II) sulphate to produce potassium sulphate and lead (II) iodide.
   - 🕮 Reaction type: double displacement
   - ✎ Balance the skeletal equation: 2 KI + ____ $PbSO_4$ → ____ K_2SO_4 + ____ PbI_2
6. The metal zinc reacts with tin (II) chloride under high heat conditions to produce zinc chloride and tin.
   - 🕮 Reaction type: single displacement
   - ✎ Balance the skeletal equation: ____ Zn + ____ $SnCl_2$ → ____ $ZnCl_2$ + ____ Sn
7. Sodium hydroxide will be neutralized when combined with hydrochloric acid to produce table salt and water.
   - 🕮 Reaction type: double displacement
   - ✎ Balance the skeletal equation: ____ NaOH + ____ HCl → ____ NaCl + ____ H_2O
8. Hydrogen bromide reacts with iron (III) hydroxide to produce iron (III) bromide and water.
   - 🕮 Reaction type: double displacement
   - ✎ Write and balance the skeletal equation: 3 HBr + $Fe(OH)_3$ → $FeBr_3$ + 3 H_2O

$Fe^{3}(OH)^{1}$ $Fe(OH)_3$