 Worksheet #4: Single-Replacement Reactions
Step 1 - Write the formulas of the reactants on the left of the yield sign
Step 2 - Look at the Activity Series on page 333 to determine if the replacement can happen
Step 3 - If the replacement can occur, complete the reaction and balance it. If the reaction cannot happen, write N.R. (no rxn) on the product side.

1.  lead + zinc acetate →

2.  iron + aluminum oxide →

3.  silver nitrate + nickel →

4.  sodium bromide + iodine →

5.  aluminum bromide + chlorine →

6.  sodium iodide + bromine →

7.  calcium + hydrochloric acid →

8.  magnesium + nitric acid →

9.  silver + sulfuric acid →

10. potassium + water →

11. sodium + water →
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1. lead + zinc acetate →
   \[ \text{Pb} + \text{Zn(C}_2\text{H}_3\text{O}_2\text{)}_2 \rightarrow \text{N.R.} \]

2. iron + aluminum oxide →
   \[ \text{Fe} + \text{Al}_2\text{O}_3 \rightarrow \text{N.R.} \]

3. silver nitrate + nickel → nickel(II) nitrate + silver
   \[ 2\text{AgNO}_3 + \text{Ni} \rightarrow \text{Ni(NO}_3\text{)}_2 + 2\text{Ag} \]

4. sodium bromide + iodine →
   \[ \text{NaBr} + \text{I}_2 \rightarrow \text{N.R.} \]

5. aluminum bromide + chlorine → aluminum chloride + bromine
   \[ 2\text{AlBr}_3 + 3\text{Cl}_2 \rightarrow 2\text{AlCl}_3 + 3\text{Br}_2 \]

6. sodium iodide + bromine → sodium bromide + iodine
   \[ 2\text{NaI} + \text{Br}_2 \rightarrow 2\text{NaBr} + \text{I}_2 \]

7. calcium + hydrochloric acid → calcium chloride + hydrogen
   \[ \text{Ca} + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2 \]

8. magnesium + nitric acid → magnesium nitrate + hydrogen
   \[ \text{Mg} + 2\text{HNO}_3 \rightarrow \text{Mg(NO}_3\text{)}_2 + \text{H}_2 \]

9. silver + sulfuric acid →
   \[ \text{Ag} + \text{H}_2\text{SO}_4 \rightarrow \text{N.R.} \]

10. potassium + water → potassium hydroxide + hydrogen
    \[ 2\text{K} + 2\text{H}_2\text{O} \rightarrow 2\text{KOH} + \text{H}_2 \]

11. sodium + water → sodium hydroxide + hydrogen
    \[ 2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2 \]