

Types of Reactions Review/Oxidation Numbers/ and Naming Acids

- Use appropriate ionic and molecular formulas to show the reactants and the products for the following, each of which occurs in aqueous solution except as indicated.
 - A solution of sodium hydroxide is added to a solution of ammonium chloride.
 - A strip of magnesium is added to a solution of silver nitrate.
 - Solid potassium chlorate is heated in the presence of manganese dioxide as a catalyst.
 - Dilute hydrochloric acid is added to a solution of potassium carbonate.
 - Sulfur trioxide gas is added to excess water (sulfuric acid is the product).
 - Dilute sulfuric acid is added to a solution of barium chloride.
- Give the formulas to show the reactants and the products for each of the following chemical reactions. Each of the reactions occurs in aqueous solution unless otherwise indicated.
 - Solutions of sodium iodide and lead II nitrate are mixed.
 - A solution of ammonia is added to a solution of Iron III chloride.
 - Solutions of silver nitrate and sodium chromate are mixed.
 - Hydrogen sulfide gas is bubbled through a solution of potassium hydroxide.
 - A piece of solid bismuth is heated
 - A strip of copper metal is added to a concentrated solution of sulfuric acid.
- Find the oxidation numbers for each element in each compound.
 - FeSO₄
 - KNO₂
 - Na₂Cr₂O₇
 - Ba(NO₃)₂
 - NF₃
 - (NH₄)₂SO₄
- Supply the oxidation number of the underlined element in the following formulas:
 - Zn₃(PO₄)₂
 - NaNO₂
 - SnBr₂
 - HSbO₂,
 - Mg(MnO₄)₂
 - NH₄NO₃
- Name the following acids:
 - H₃PO₄
 - H₂CO₃
 - H₂SO₄
 - HIO₃
 - HF
 - HNO₂
- Write the formula for these acids:
 - hydrobromic acid
 - hydrocyanic acid [this has a twist in it]
 - nitric acid
 - sulfurous acid
 - phosphorous acid
 - acetic acid
- Analyze each element in the following reactions, determine which elements in each reaction are changing oxidation state, and predict how many electrons are involved in that change in oxidation state.:
 - $6 \text{ Li} + \text{N}_2 \rightarrow 2 \text{ Li}_3\text{N}$
 - $\text{CO} + \text{H}_2\text{O} \rightarrow \text{CO}_2 + \text{H}_2$
 - $\text{Sr} + 2 \text{ H}_2\text{O} \rightarrow \text{Sr}(\text{OH})_2 + \text{H}_2$
 - $\text{Ca} + \text{H}_2 \rightarrow \text{CaH}_2$
 - $2 \text{ K} + 2 \text{ NH}_3 \rightarrow 2 \text{ KNH}_2 + \text{H}_2$
 - $2 \text{ Al} + \text{Fe}_2\text{O}_3 \rightarrow \text{Al}_2\text{O}_3 + 2 \text{ Fe}$