Aqueous Solutions and Chemical Reactions III
Worksheet

Write the balanced net ionic equations for the chemical reactions that are outlined in questions 1 through 9.

1) A solution of sodium dichromate is added to an acidic solution of iron (II) chloride.

2) Acidic solutions of potassium permanganate and sodium sulfite are mixed.

3) Concentrated hydrochloric acid is poured into a solution of potassium dichromate.

4) Acidic solutions of potassium permanganate and hydrogen peroxide are mixed.

5) Solutions of nitric acid and barium sulfite are mixed.

6) Acidified solutions of sodium dichromate and copper (I) bromide are mixed.

7) Basic solutions of iron (II) chloride and potassium permanganate are mixed.

8) Basic solutions of sodium sulfite and potassium permanganate are mixed.

9) Concentrated hydrochloric acid is poured over **solid** potassium permanganate.

10) A 0.0500 *M* solution of potassium permanganate was used to titrate 250.0 mL of a platinum (II) chloride solution with an unknown concentration. The endpoint was reached after 26.87 mL of 0.0500 *M* $KMnO_4$ was delivered.
    a. Write the balanced net ionic equations for the chemical reaction that occurred during this titration.
    b. How many moles of $KMnO_4$ were delivered when the endpoint was reached?
    c. How many moles of platinum (II) chloride where contained in the 250.0 mL sample?
    d. Calculate the experimentally determined molar concentration (mol/L) of platinum (II) chloride in solution.

11) Write the balanced reduction half-reaction for the decomposition of hydrogen peroxide.

12) Hydrogen gas is blown over hot iron (II) oxide.
    a. Write the balanced reduction half reaction that occurs.
    b. Write the balanced oxidation half reaction that occurs.
    c. Write the balanced net ionic equation for this reaction.