

Name: _____ Period: _____

AP Chemistry

Balancing Redox Reactions

1. Determine the oxidation state of each of the elements in the following:

sulfur trioxide

nitric acid

P_2O_3

P_2O_5

IF_3

PO_4^{-3}

PO_3^{-3}

HPO_4^{-1}

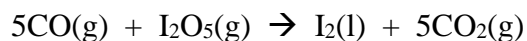
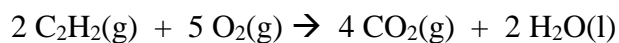
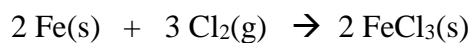
$H_2PO_4^{-2}$

CH_4

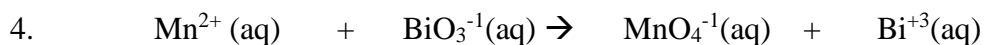
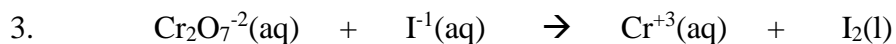
potassium permanganate

manganese (II) oxide

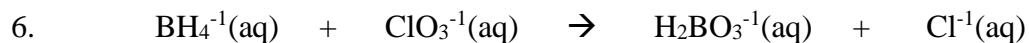
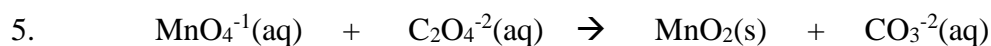
2. For each of the following, assign oxidation numbers then label which element is oxidized and which is reduced.



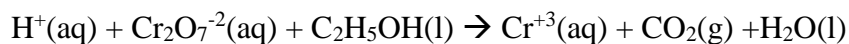
Balance the following two reactions in acid



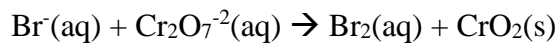
Balance the following two reactions in base



7. Potassium dichromate is a bright orange compound that can be reduced to a blue violet solution of Cr^{+3} ions. Under certain conditions potassium dichromate reacts with ethyl alcohol ($\text{C}_2\text{H}_5\text{OH}$) according to the equation below. Identify the atoms that are oxidized and those that are reduced.



8. Balance the equation for the reaction between permanganate and bromide ions in acidic solution.



9. Balance the following oxidation-reduction reaction that occurs in basic solution

