Name _____ Period _____

Redox Reactions #3
Balancing Equations in Basic Solution

Balance the following oxidation–reduction reactions that occur in basic solution using the half reaction method.

1) $Al(s) + MnO_4^-(aq) \leftrightarrows MnO_2(s) + Al(OH)_4^-(aq)$

2) $NO_2^-(aq) + Al(s) \leftrightarrows NH_3(g) + AlO_2^-(aq)$

3) $CN^-(aq) + MnO_4^-(aq) \leftrightarrows CNO^-(aq) + MnO_2(s)$

4) $Mn^{2+}(aq) + H_2O_2\ (aq) \leftrightarrows MnO_2(aq) + H_2O(l)$

5) $Bi(OH)_3(s) + SnO_2^-(aq) = SnO_3^-(aq) + Bi(s)$

6) $Cl_2(g) \leftrightarrows Cl^-(aq) + ClO^-(aq)$

7) $MnO_4^-(aq) + S^{2-}(aq) \leftrightarrows MnS(s) + S(s)$

8) $Br_2(g) \leftrightarrows Br^-(aq) + BrO_3^-(aq)$

9) $PO_3^{3-}(aq) + MnO_4^-(aq) \leftrightarrows PO_4^{3-}(aq) + MnO_2(aq)$