

KEY

AP Chemistry

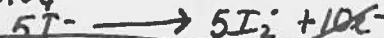
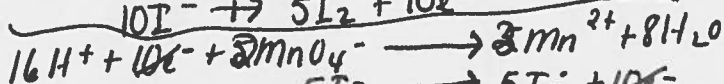
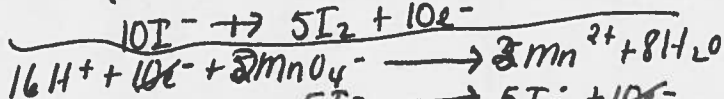
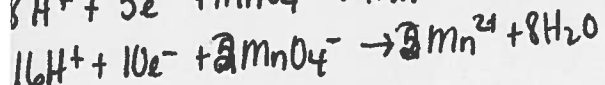
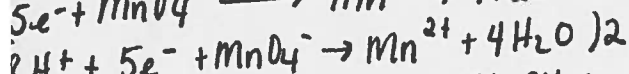
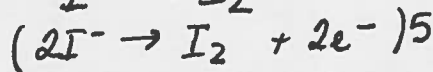
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OXIDATION-REDUCTION EQUATIONS

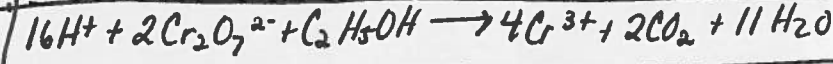
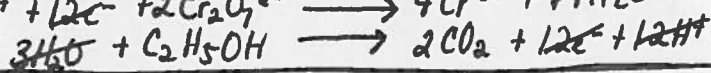
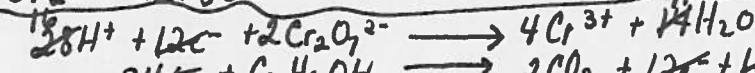
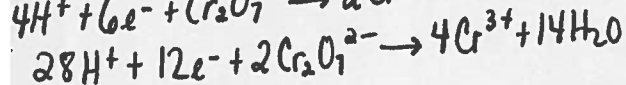
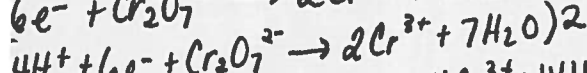
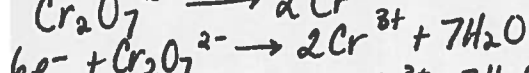
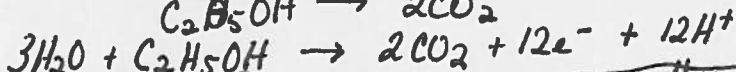
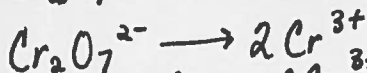
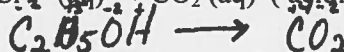
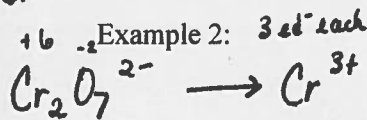
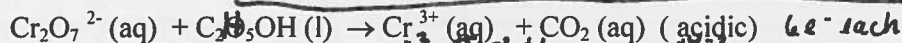
The Half-Reaction Method:

1. Write the equation as two half-reactions. Include the particles (atoms, ions, molecules) that are involved in change of oxidation state.
2. Balance each half-reaction with respect to atoms and charges; first atoms other than H and O, then O with H₂O and H with H⁺, and ionic charges with electrons (e⁻).
3. Equalize the number of electrons lost in the oxidation half-reaction with the number of electrons gained in the reduction half-reaction.
4. Add the two half-reactions to form a balanced net ionic equation.
5. (Basic solution) Add OH⁻ ions to each side of the equation to neutralize H⁺ ions. Cancel H₂O molecules.

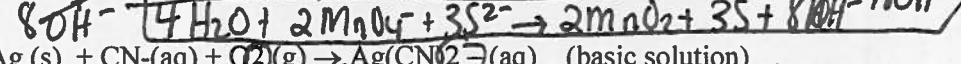
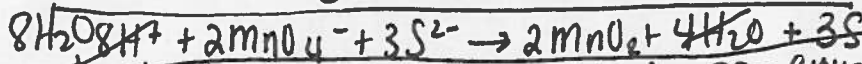
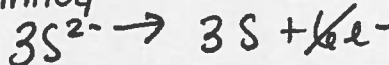
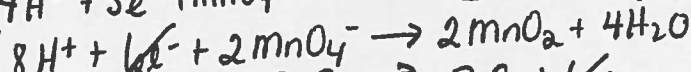
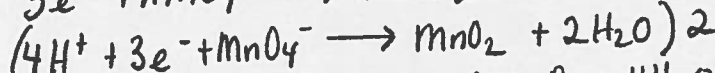
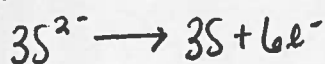
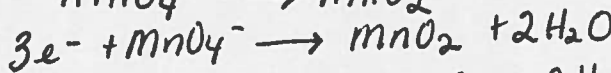
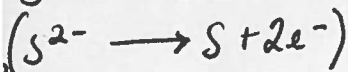
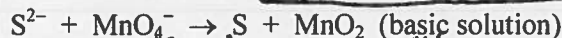
Example 1:



Example 2:



Example 3:



Example 4:

