CONCEPT: REDOX REACTIONS

- **Redox Reactions** (oxidation-reduction reactions) involve transference of an electron(s) between reactants.

MEMORY TOOL

LEO the lion goes **GER**

___ose ___lectrons ___xidation	___ain ___lectrons ___eduction
□ Become more _____ in charge.	□ Become more _____ in charge.
□ Oxidation number ____.	□ Oxidation number ____.

- **Reduction** and **Oxidation**: the _____ of oxidizing and reducing agents.
  - □ **Oxidizing Agent**: The element or compound that is _____.
  - □ **Reducing Agent:** The element or compound that is _____.

EXAMPLE: Consider the following reaction below when solid lithium reacts with the zinc ion:

$$2\ Li\ (s) + Zn^{2+}\ (aq) \longrightarrow 2\ Li^{+}\ (aq) + Zn\ (s)$$

Which reactant is undergoing **oxidation** and which reactant is undergoing **reduction**?

PRACTICE: Which element is being reduced in the following reaction?

$$Cr_2O_7^{2-} + 3\ HNO_2 + 5\ H^{+} \longrightarrow 2\ Cr^{3+} + 3\ NO_3^{-} + 4\ H_2O$$

CONCEPT: REDOX REACTIONS

PRACTICE: Identify the oxidizing agent and reducing agent from the following redox reaction.

$$Ba\ (s) + Cl_2\ (g) \longrightarrow BaCl_2\ (aq)$$

PRACTICE: Which element is oxidized and which is reduced in the following reaction?

$$Hg\ (aq) + HgCl_2\ (aq) \longrightarrow Hg_2Cl_2\ (aq)$$

PRACTICE: Which of the following represents an oxidation-reduction reaction?

I. $PCl_3\ (aq) + Cl_2\ (g) \longrightarrow PCl_5\ (aq)$

II. $2\ AgNO_3\ (aq) + Cu\ (s) \longrightarrow Cu(NO_3)_2\ (aq) + 2\ Ag\ (s)$

III. $CO_2\ (g) + 2\ LiOH\ (aq) \longrightarrow Li_2CO_3\ (aq) + H_2O\ (l)$

IV. $FeCl_2\ (aq) + 2\ NaOH\ (aq) \longrightarrow Fe(OH)_2\ (aq) + 2\ NaCl\ (aq)$

a) I, II, III, and IV b) I, II, and III c) III d) I and II e) IV