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Oxidation Numbers & Redox Reactions

For each of the following compounds and ions, write the oxidation number of each element.

- 1. FeO
- 2. N_2
- 3. $KMnO_4$
- 4. NH₄OH
- 5. $(NH_4)_3PO_4$
- 6. MgCr₂O₇

Balance the following (redox) equations.

7.
$$\operatorname{Zn^0} + \operatorname{Tl^+} \longrightarrow \operatorname{Tl^0} + \operatorname{Zn^{2+}}$$

8.
$$Li^0 + Cr^{3+} \longrightarrow Cr^0 + Li^+$$

9.
$$K^0 + Mg^{2+} \longrightarrow K^+ + Mg^0$$

10.
$$\operatorname{NaOH}(aq) + \operatorname{Ca}(s) + \operatorname{AlCl}_3(aq) \longrightarrow \operatorname{Al}(s) + \operatorname{Ca}(\operatorname{OH})_2(s) + \operatorname{NaCl}(aq)$$

Hint:

- (a) Rewrite as a net ionic equation.
- (b) Split into half-reactions, balance, and combine as above.