

1. What occurs when  $\text{Cr}^{3+}$  ions are reduced to  $\text{Cr}^{2+}$  ions?
  1. Electrons are lost and the oxidation number of chromium increases.
  2. Electrons are lost and the oxidation number of chromium decreases.
  3. Electrons are gained and the oxidation number of chromium increases.
  4. Electrons are gained and the oxidation number of chromium decreases.
2. Which type of reaction involves the transfer of electrons?
  1. alpha decay
  2. double replacement
  3. neutralization
  4. oxidation-reduction
3. Which balanced equation represents a redox reaction?
  1.  $\text{Mg} + \text{Cl}_2 \rightarrow \text{MgCl}_2$
  2.  $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$
  3.  $\text{HNO}_3 + \text{NaOH} \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$
  4.  $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl} + \text{NaNO}_3$
4. What is the oxidation state for a Mn atom?
  1. 0
  2. +7
  3. +3
  4. +4
5. What is the oxidation number of manganese in  $\text{KMnO}_4$ ?
  1. +7
  2. +2
  3. +3
  4. +4