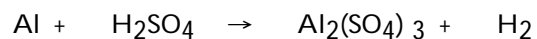


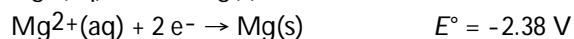
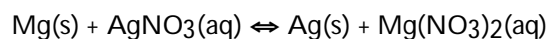
Rest of Redox Reactions Practice Problems

1) When balancing a redox reaction, extra "leftover" electrons should be placed on the product side. (True or False) 1) _____

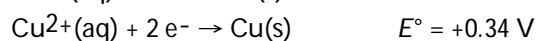
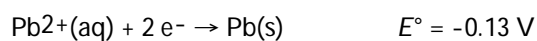
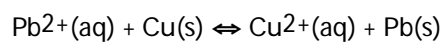
2) What are the balanced oxidation and reduction half reactions in the following unbalanced reaction. If aluminum metal is submersed in sulfuric acid, will this reaction take place? 2) _____



3) Is the following reaction spontaneous in the forward direction? 3) _____

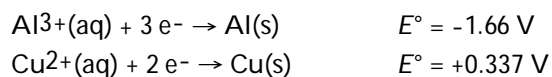
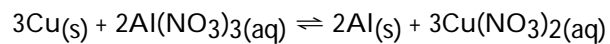


4) Is the following reaction spontaneous in the forward direction? 4) _____



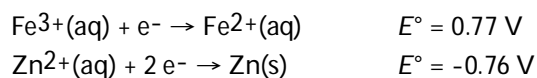
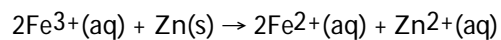
5) Is the following reaction spontaneous in the forward direction?

5) _____



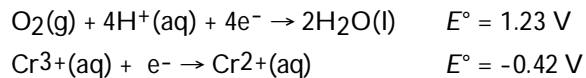
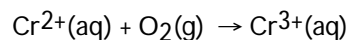
6) Is the following reaction spontaneous in the forward direction?

6) _____



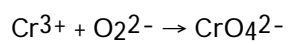
7) Balance the following reaction that occurs in acidic solution. Is this reaction spontaneous in the forward direction?

7) _____



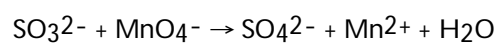
8) Balance the following reaction that occurs in basic solution?

8) _____



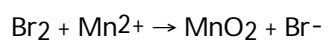
9) Balance the following reaction that occurs in acidic solution?

9) _____



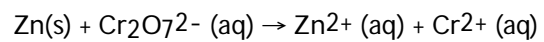
10) Balance the following reaction that occurs in basic solution?

10) _____



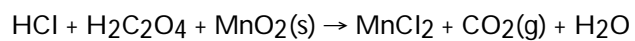
11) Balance the following reaction that occurs in acidic solution?

11) _____



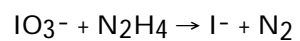
12) Balance the following reaction that occurs in acidic solution?

12) _____



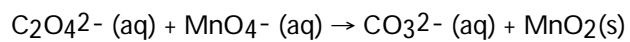
13) Balance the following reaction that occurs in acidic solution?

13) _____



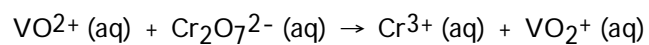
14) Balance the following reaction that occurs in basic solution?

14) _____



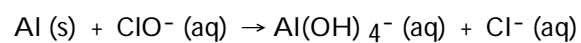
15) Balance the following reaction that occurs in acidic solution

15) _____

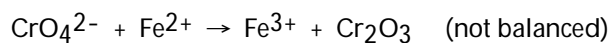


16) Balance the following reaction that occurs in basic solution?

16) _____



- 17) Balance the following equation that occurs in acidic solution. How many milliliters of a 3.85 M solution of Fe^{2+} are needed to titrate 250.0 mL of a 0.125 M CrO_4^{2-} solution? 17) _____



The following are not redox related.

- 18) Calculate the molarity of Cl^- in 245.0 mL of a solution containing 23.4 g BaCl_2 . 18) _____

- 19) If the concentration of Na^+ in an aqueous solution of sodium sulfate is 3.2×10^{-1} mol/L, how many moles of sodium sulfate must have been dissolved per liter to make the solution? 19) _____

- A) 6.4×10^{-1} B) 1.1×10^{-1} C) 9.6×10^{-1} D) 1.6×10^{-1} E) 3.2×10^{-1}

- 20) Consider a 1.00-L solution containing 85.5 g $\text{Al}_2(\text{SO}_4)_3$ (FW = 342.15) and 21.3 g Na_2SO_4 (FW = 142.06). What are the molar concentrations of aluminum, sodium, and sulfate ions, respectively? 20) _____

$[\text{Al}_3^+]$, $[\text{Na}^+]$, $[\text{SO}_4^{2-}]$

- A) 0.50 0.75 0.15
B) 0.25 0.30 0.15
C) 0.50 0.30 0.90
D) 0.25 0.15 0.40
E) 0.50 0.75 0.90