# Exercise 11.10 (Cont.)

**EXERCISE 11.10: Continued**

Use the Table of Standard Reduction Potentials to write the net equations for the processes described below and determine their standard cell potentials.

**Metallic copper is placed in 1 M $AgNO_3$.**

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ $e^{1-}$ $\rightleftharpoons$ _____

Ox. 2 Red. 2

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ $\rightarrow$ _____ + _____

Red. 1 Ox. 2 Ox. 1 Red. 2

The standard cell potential in volts is: _____

**Metallic chromium is placed in 1 M $CuSO_4$.**

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ $e^{1-}$ $\rightleftharpoons$ _____

Ox. 2 Red. 2

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ $\rightarrow$ _____ + _____

Red. 1 Ox. 2 Ox. 1 Red. 2

The standard cell potential in volts is: _____

**Metallic iron is placed in 1 M $NiSO_4$.**

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ $e^{1-}$ $\rightleftharpoons$ _____

Ox. 2 Red. 2

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ $\rightarrow$ _____ + _____

Red. 1 Ox. 2 Ox. 1 Red. 2

The standard cell potential in volts is: _____

**Metallic sodium is added to water.**

Note: in some half reactions, there are substances present that are not involved in the electron transfer but are required for a balanced equations. These substances will be referred to as "other." Other substances are usually $H_2O$, $OH^{1-}$, or $H^{1+}$ when they are not involved in the electron transfer. This example contains one "Other" substance.

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ $e^{1-}$ $\rightleftharpoons$ _____ + _____

Ox. 2 Red. 2 Other

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ $\rightarrow$ _____ + _____ + _____

Red. 1 Ox. 2 Ox. 1 Red. 2 Other

The standard cell potential in volts is: _____

**Metallic chromium is placed in 1 M $AgNO_3$.**

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ $e^{1-}$ $\rightleftharpoons$ _____

Ox. 2 Red. 2

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ $\rightarrow$ _____ + _____

Red. 1 Ox. 2 Ox. 1 Red. 2

The standard cell potential in volts is: _____

**Metallic copper is placed in 1 M nitric acid.**

Oxidation half reaction:

_____ $\rightleftharpoons$ _____ + _____ $e^{1-}$

Red. 1 Ox. 1

Reduction half reaction:

_____ + _____ + _____ $e^{1-}$ $\rightleftharpoons$ _____ + _____

Ox. 2 Other Red. 2 Other

The number of electrons transferred (or the LCM) is: _____

Write the net equation (if any).

_____ + _____ + _____ $\rightarrow$

Red. 1 Ox. 2 Other

_____ + _____ + _____

Ox. 1 Red. 2 Other

The standard cell potential in volts is: _____