Exercise 9.3
Electrochemical Cells: Components and Cell Notation

1. The half-reactions for an electrochemical cell are written below. There is a salt bridge connecting the two half-cells.

$$Co^{2+}_{(aq)} + 2e^- \rightarrow Co_{(s)}$$
$$Mn_{(s)} \rightarrow Mn^{2+}_{(aq)} + 2e^-$$

(a) Identify the cathode.

(b) Identify the anode.

(c) Describe this cell using abbreviated standard notation (include phases).

(d) Sketch this cell, labeling all essential components.

2. Consider the following cell:

$$Pt_{(s)}\left|Cr^{2+}_{(aq)}, Cr^{3+}_{(aq)}\right.\left\|H^+_{(aq)}\right|H_{2(g)}\left|Pt_{(s)}\right.$$

(a) Write the overall reaction for this cell.

(b) Sketch this cell, labeling all essential components.