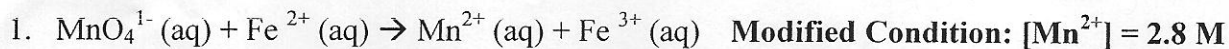


Using the chart on page 796 in your text, find the standard cell potentials for the following equations. Then solve for the actual cell potential according to the modified conditions listed.

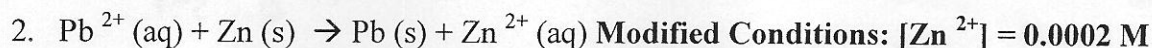


$$E_{\text{cell}} = 0.74 - \frac{0.0591}{5} \log \frac{2.8}{1^3} \quad 1.51 - 0.77$$

$$0.734 \text{ volts}$$

$$\log K = \frac{5(0.74)}{0.0591}$$

$$4.034 \times 10^{62}$$

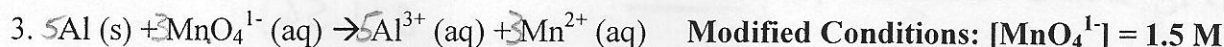


$$-0.13 + 0.76$$

$$E_{\text{cell}} = 0.63 - \frac{0.0591}{2} \log 0.0002$$

$$0.739 \text{ volts}$$

$$\log K = \frac{2(0.63)}{0.0591} \quad 2.088 \times 10^{21}$$



and  $[\text{Al}^{3+}] = 0.7 \text{ M}$ .

$$1.51 + 1.66$$

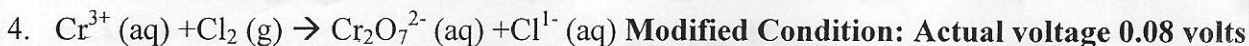
$$E_{\text{cell}} = 3.17 - \frac{0.0591}{15} \log \frac{(0.7)^5}{(1.5)^3}$$

$$3.175 \text{ volts}$$

$$\log K = \frac{15(3.17)}{0.0591}$$

$$K = 10^{804.5}$$

Using the chart on page 796 in your text, find the standard cell potentials for the following equations. Then solve for the actual concentration of the indicated ion according to the modified conditions listed.



and I want to know the concentration of  $\text{Cr}^{3+}$  ions in solution.

$$0.08 = 0.03 - \frac{0.0591}{6} \log \frac{1}{[\text{Cr}^{3+}]^2} \quad -1.33 \quad 1.36$$

$$.05 = -\frac{0.0591}{6} - \log [\text{Cr}^{3+}]^2$$

$$\frac{.05}{-.00985}$$

$$-5.076 = -\log [\text{Cr}^{3+}]^2$$

$$\log K = \frac{6(0.03)}{0.0591}$$

$$1110.9$$

$$345 \text{ M} = [\text{Cr}^{3+}]$$



and I want to know the concentration of  $\text{Zn}^{2+}$  ions in solution.

$$1.48 = 1.56 - \frac{0.0591}{2} \log \frac{[\text{Zn}]}{1}$$

$$-0.08$$

$$2.707 = \log [\text{Zn}]$$

$$509 \text{ M} = [\text{Zn}^{2+}]$$

$$.80 - .76$$

$$\log K = \frac{2(1.56)}{0.0591}$$

$$6.19 \times 10^{52}$$

For Each of the above 5 problems, also solve for the equilibrium constant for the reaction.