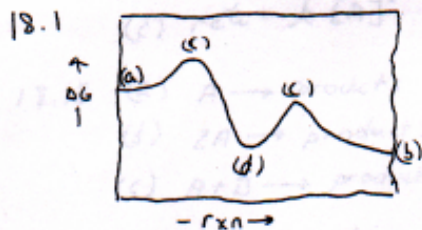
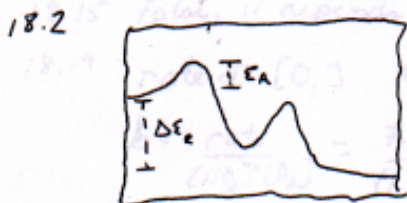


Review assignment #5
 Mumawitz chapter 18: 1, 2, 8, 9, 10, 12, 13, 15, 19, 20, #439



Transition states are unstable species while intermediates are more stable $c \rightarrow$ products



18.8 (c) The lower (red) line
 (b) the same.

- 18.9 (c) Depends on volume of H_2O and temperature. A few drops on a hot griddle evaporate in seconds but a liter of water on a counter top takes awhile.
 (b) Naturally, it takes time on the order of the geological time scale. In the lab, it takes only a few hours.
 (c) A few seconds for the dissolution of $NaCl$ in H_2O .

18.10 (c) $H_2O(l) \rightarrow H_2O(g)$
 $\Delta G^\circ = \Delta G_f^\circ[H_2O(g)] - \Delta G_f^\circ[H_2O(l)] = (-228.6 \text{ kJ mol}^{-1}) - (-237.2 \text{ kJ mol}^{-1}) = 8.6 \text{ kJ mol}^{-1}$ (nonspontaneous)

$$K = \exp\left(-\frac{\Delta G^\circ}{RT}\right) = \exp\left(-\frac{8.6 \times 10^3 \text{ J mol}^{-1}}{(8.3145 \text{ J mol}^{-1} \text{ K}^{-1})(298.15 \text{ K})}\right) = 0.031$$

(b) as above, $\Delta G^\circ = 2.9 \text{ kJ mol}^{-1}$ (nonspontaneous)
 $\therefore K = 0.31$

(c) $\Delta G^\circ = -8.9 \text{ kJ mol}^{-1}$ & $K = 36$

time and ΔG° don't correlate.

