

9 Entropy and free energy – Part 1 —Answers

Answers

Work through these after you have tried the questions yourself.

2.1 entropy decreases (a liquid is more ordered than a gas).

2.2 $\Delta G < 0$ (negative).

2.3 favorable $-\Delta H$ is negative and ΔS is positive, so $\Delta G = \Delta H - T\Delta S$ is negative at all temperatures.

2.4 favorable when $\Delta G < 0$: $T > \frac{\Delta H}{\Delta S} = \frac{30}{0.10} = 300 \text{ K}$.

2.5 its activation energy may be very high, so even though $\Delta G < 0$ the reaction is extremely slow (thermodynamics allows it, kinetics limits it).