

Solutions

Each answer shows the steps, then the **result**.

2.1

- $\Delta G = \Delta H - T\Delta S$

2.2

- Yes ($\Delta G < 0$)

2.3

- $\Delta G = -50 - 300(0.100) = -50 - 30 = -80 \text{ kJ}$

3.1 B

- negative

3.2

(a)

- High temperature (both positive)

(b)

- $T = \frac{\Delta H}{\Delta S} = \frac{30}{0.10} = 300 \text{ K}$

3.3

- Favorable at **low** temperature — with $\Delta S < 0$, the $-T\Delta S$ term is positive and grows with T ; only at low T is it small enough for the negative ΔH to dominate and keep $\Delta G < 0$