

Solutions

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

2.1

- $\Delta S^\circ = \Sigma S^\circ(\text{products}) - \Sigma S^\circ(\text{reactants})$

2.2

- No — it is a positive value

2.3

- $400 - 550 = -150 \text{ J/K}$

3.1 B

- a positive value

3.2

(a)

- $\Delta S^\circ = 2(257) - [2(248) + 205] = 514 - 701 = -187 \text{ J K}^{-1}$

(b)

- Yes — 3 gas moles become 2, so a decrease is expected

3.3

- Fewer gas molecules means fewer ways to arrange the particles, so the disorder (entropy) decreases, giving a negative ΔS°