$\Delta S°_{rxn} = 4(213.8\ J/K) + 6(69.9\ J/K) - [7(205.0\ J/K) + 2(229.5\ J/K)]$

$= \boxed{-619.4\ J/K}$

Reversible Processes

- Changes occur such that the system and surroundings can be returned to the original state by exactly reversing the process

$\Delta E = q + w$ ← state function (doesn't matter how you get from E_1 to E_2)

path independent; path dependent

Irreversible process - can't return to original state by microscopically reversing process

Heat Transfer

- Heat only flows from high T object to low T object.
  - ↳ irreversible
- Transfer of heat is only reversible if there's an infinitesimally small T difference between system and surroundings so that heat can flow in either direction ⇒ idealized case, not often achievable
  - big difference in T ⇒ irreversible
  - microscopic difference in T ⇒ reversible