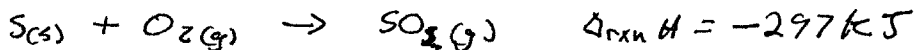


① calculate $\Delta_{\text{rxn}} H$ for

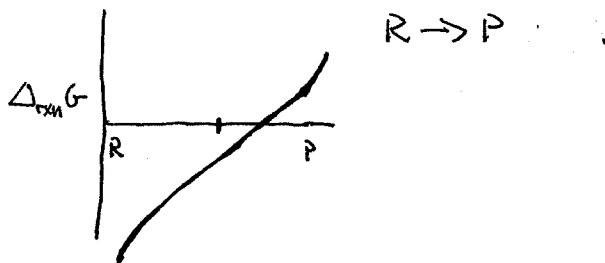


given



$$2(-297 \text{ kJ}) + (-198 \text{ kJ}) = -792 \text{ kJ}$$

② Sketch a graph of $\Delta_{\text{rxn}} G$ for a product favored reaction



③ Indicate "increase", "decrease" or "no effect" on the Partitioning of an ion between water and chlorobenzene according to the Born model

$$\Delta G_{\beta \rightarrow \alpha} = \frac{(ze)^2}{8\pi\epsilon_0 r_i} \left(\frac{1}{\epsilon_\alpha} - \frac{1}{\epsilon_\beta} \right)$$

- increase increase the charge of the ion
- decrease Use an ion in which H_2O act as a ligand ($\text{M}^+ \cdot n\text{H}_2\text{O}$)
- decrease Heat the solution
- no effect Add more ions
- decrease Put methanol into the water.



$$P = e^{-\frac{L(ze)^2}{8\pi\epsilon_0 r_i RT} \left(\frac{1}{\epsilon_\alpha} - \frac{1}{\epsilon_\beta} \right)}$$