

CONCEPT: GIBBS FREE ENERGY

□ Predicts _____ of reactions. Composed of three terms.

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

- **Enthalpy** ΔH° is the sum of bond dissociation energies for the reaction.

_____ = _____ bonds = *Exothermic* _____ = _____ bonds = *Endothermic*

- **Entropy** ΔS is a measure of disorder in the system.

_____ = More ordered _____ = More disordered

- **Temperature** T amplifies the effect of entropy on the overall favorability.

□ Some reactions require more than one step to go to completion. The ΔG° is the sum of all the steps.

- Transition states _____ be isolated. They involve bonds being broken and made at the same time.
- Intermediates _____ be isolated. They rest at a higher energy state than normal.

