

Gibbs Mental Math

$\Delta H_{\text{sys}} - T\Delta S_{\text{sys}} = \Delta G_{\text{sys}}$			
ΔH	ΔS	ΔG	At...
- exothermic	+ more disorder	- ALWAYS spont.	Any temp
+ endothermic	- less disorder	+ NEVER spont.	Any temp
- exothermic	- less disorder	- spont.	Low Temp
- exothermic	- less disorder	+ NOT spont.	High Temp
+ endothermic	+ more disorder	- spont.	High Temp
+ endothermic	+ more disorder	+ NOT spont.	Low Temp

	$\Delta H < 0$	$\Delta H > 0$
$\Delta S > 0$	Spontaneous at all T ($\Delta G < 0$)	Spontaneous at high T (when $T\Delta S$ is large)
$\Delta S < 0$	Spontaneous at low T (when $T\Delta S$ is small)	Non-spontaneous at all T ($\Delta G > 0$)

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