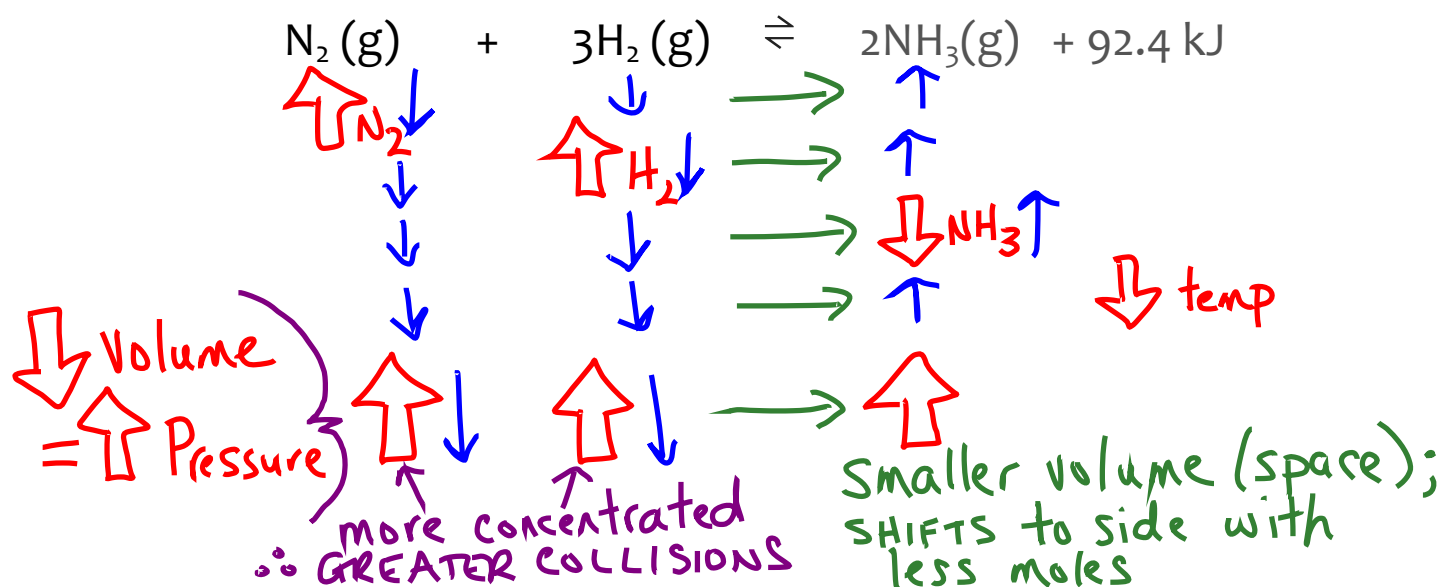


LeChâtelier's Principle

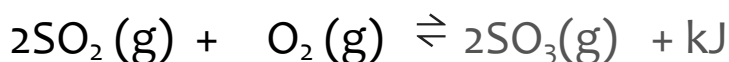
STRESSful examples ☺

- For the HABER REACTION, identify as many ways as possible in which the equilibrium concentration of ammonia gas can be increased in a closed vessel :

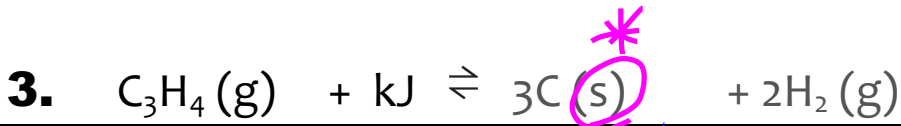


For the following reactions, show clearly how each stress will affect the concentrations of each reactant and product, which way the equilibrium will shift to offset the stress, and the net effect on the Keq value.

2.

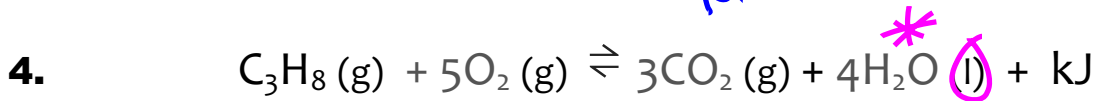


STRESS:					EFFECT on K
[SO ₂] ↑	↑ ↓	↓ →	↑		—
[SO ₃] ↓	↓	↓ →	↓ ↑		—
↑ Pressure (by decreasing the volume)	↑ ↓	↑ ↓ →	↑	less moles on R.S.	—
↑ Temp.	↑	↑ ←	↓	↑	K ↓



STRESS:					EFFECT on K
$[H_2]$ ↑	↑		← solid is consumed	↑ ↓	—
$[C_3H_4]$ ↑	↑ ↓		→ solid is formed	↑	—
Pressure (increase volume) ↓	↓		→ solid is formed	↓ ↑	—
Temp. ↑	↓	↑	→ solid is formed	↑	K ↑

more moles of gas on R.S. shifts to



STRESS:					EFFECT on K
$[C_3H_8]$ ↓	↓ ↑	↑	← ↓	you will see less $H_2O(l)$ after the SHIFT	—
$[CO_2]$ ↑	↑	↑	← ↑ ↓		—
Volume ↑	↓ ↑	↓ ↑	← ↓	more moles of gas	—
Temp. ↓	↓	↓	→ ↑	more $H_2O(l)$	K ↑
Add catalyst	NOT A STRESS. EQUILIBRIUM IS REACHED FASTER / EASIER				
Add Ne to the closed reaction:					
<u>Volume remains the same.</u>	Since no moles nor litres change, no chemical is stressed.				
<u>Volume adjusted to accommodate for increased pressure due to increased moles of gas.</u>	↓ ↑	↓ ↑	← ↓	then conc ↓	—

