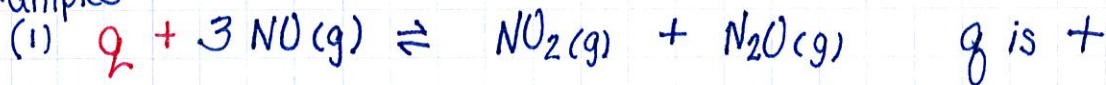


Le Chatelier's Principle

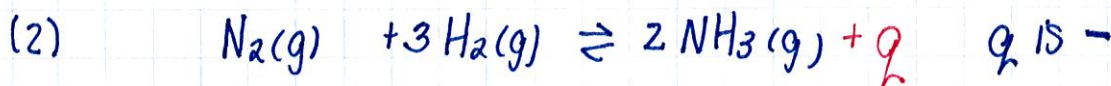
A stress applied to a system at equilibrium will shift the position of equilibrium in order to reduce the stress.

<u>Type of stress</u>	<u>Equilibrium shifts</u>	<u>Why?</u>
[reactant] ↑	right (products)	to use up extra reactant
[reactant] ↓	left (reactants)	to create more reactant
[product] ↑	left (reactants)	to use up extra product
[product] ↓	right (products)	to create more product
Volume (P ↓) ↑	toward the side w/ more moles of gas	to ↑ P
Volume (P ↑) ↓	toward the side w/ less moles of gas	to ↓ P
Temperature ↑	away from q (heat)	to ↓ T
Temperature ↓	toward the q	to ↑ T
add a catalyst	never shifts	

Examples



(A) ↑ [NO ₂]	left	(E) ↑ [NO]	right
(B) ↑ T	right	(F) ↓ [N ₂ O]	right
(C) ↓ V	right	(G) ↓ T	left
(D) add a catalyst	no shift	(H) ↑ V	left



(A) ↓ [NH ₃]	right	(D) ↓ [N ₂]	left
(B) ↓ T	right	(E) ↑ [H ₂]	right
(C) ↓ V	right	(F) ↑ V	left
		(G) ↑ T	left