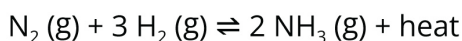




# Worksheet: Le Chatelier's Principle



1. Ammonia is produced commercially by the Haber reaction :



The formation of ammonia is favored by

(A) an increase in pressure

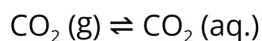
(B) a decrease in pressure

(C) removal of  $\text{N}_2 (\text{g})$

(D) removal of  $\text{H}_2 (\text{g})$

Ans. \_\_\_\_\_

2. Given the closed system at equilibrium :



As the pressure on the system increases, the solubility of the  $\text{CO}_2 (\text{g})$

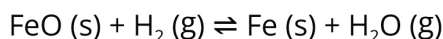
(A) decreases

(B) increases

(C) remains the same

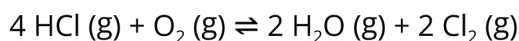
Ans. \_\_\_\_\_

3. Consider the following equilibrium system :



Describe the effect that a decrease in volume would have on the position of equilibrium and the  $[\text{H}_2]$  in the above system.

4. When the volume of the following mixture of gases is increased, what will be the effect on the equilibrium position?



5. Predict the effect of decreasing the container volume for each equilibrium.

(a)  $2 \text{H}_2\text{O} (\text{g}) + \text{N}_2 (\text{g}) \rightleftharpoons 2 \text{H}_2 (\text{g}) + 2 \text{NO} (\text{g})$

\_\_\_\_\_

(b)  $\text{SiO}_2 (\text{s}) + 4 \text{HF} (\text{g}) \rightleftharpoons \text{SiF}_4 (\text{g}) + 2 \text{H}_2\text{O} (\text{g})$

\_\_\_\_\_

(c)  $\text{CO} (\text{g}) + \text{H}_2 (\text{g}) \rightleftharpoons \text{C} (\text{s}) + \text{H}_2\text{O} (\text{g})$

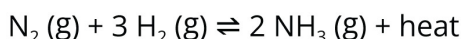
\_\_\_\_\_



# Worksheet: Le Chatelier's Principle



1. Ammonia is produced commercially by the Haber reaction :



The formation of ammonia is favored by

(A) an increase in pressure

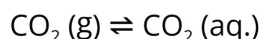
(B) a decrease in pressure

(C) removal of  $\text{N}_2 (\text{g})$

(D) removal of  $\text{H}_2 (\text{g})$

Ans.     A    

2. Given the closed system at equilibrium :



As the pressure on the system increases, the solubility of the  $\text{CO}_2 (\text{g})$

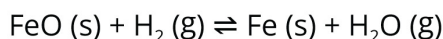
(A) decreases

(B) increases

(C) remains the same

Ans.     B    

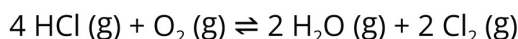
3. Consider the following equilibrium system :



Describe the effect that a decrease in volume would have on the position of equilibrium and the  $[\text{H}_2]$  in the above system.

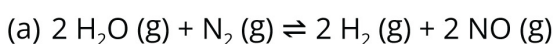
Since there is an equal number of gas particles on the reactant and product sides, there would be no shift to the equilibrium position. The  $[\text{H}_2]$  would increase as a result of decreasing the volume.

4. When the volume of the following mixture of gases is increased, what will be the effect on the equilibrium position?

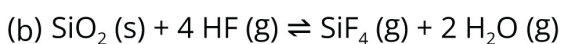


Shifts toward the left to increase the number of gas molecules.

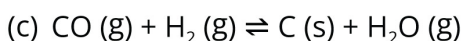
5. Predict the effect of decreasing the container volume for each equilibrium.



Equilibrium will shift to favor reactants.



Equilibrium will shift to favor products.



Equilibrium will shift to favor products.