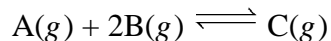
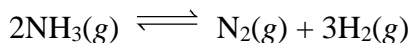


1. For the reaction given below, 2.00 mol of A and 3.00 mol of B are placed in a 6.00-L container.



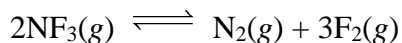
At equilibrium, the concentration of A is 0.232 mol/L. What is the concentration of B at equilibrium?

2. A sample of ammonia gas was allowed to come to equilibrium at 400 K.

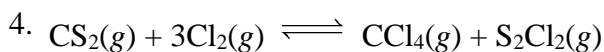


At equilibrium, it was found that the concentration of H_2 was 0.0555 M, the concentration of N_2 was 0.0185 M, and the concentration of NH_3 was 0.388 M. What was the initial concentration of ammonia?

3. Nitrogen trifluoride decomposes to form nitrogen and fluorine gases according to the following equation:

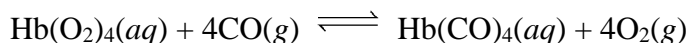


When 2.92 mol of NF_3 is placed in a 2.00-L container and allowed to come to equilibrium at 800 K, the mixture is found to contain 0.0271 mol of N_2 . What is the value of K_p at this temperature? You must first solve for K_c and then convert to K_p .



At a given temperature, the reaction above is at equilibrium when $[\text{CS}_2] = 0.050 M$, $[\text{Cl}_2] = 0.25 M$, $[\text{CCl}_4] = 0.15 M$, and $[\text{S}_2\text{Cl}_2] = 0.35 M$. What will be the direction of the reaction when the reactants and products have the following concentrations: $\text{CS}_2 = 0.16 M$, $\text{Cl}_2 = 0.21 M$, $\text{CCl}_4 = 0.28 M$, and $\text{S}_2\text{Cl}_2 = 0.37 M$? You must show calculations to support your answer.

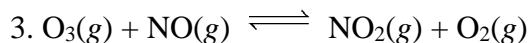
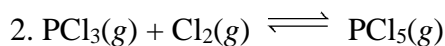
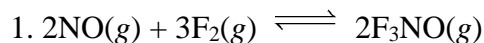
5. Carbon monoxide is toxic because it can successfully compete with oxygen for hemoglobin (Hb) sites according to the following equilibrium:



From Le Châtelier's principle, how is CO poisoning reversed by

- A) increasing the O_2 pressure. D) decreasing the amount of Hb.
 B) increasing the CO pressure. E) increasing the amount of Hb.
 C) increasing the CO_2 pressure.

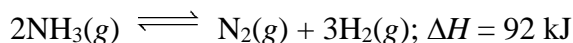
6. Which of the following equilibria would be affected by volume changes at constant temperature?



- A) 1 only B) 2 only C) 3 only D) 1 and 2 only E) 1, 2, and 3

Explain your reasoning: _____

7. Consider the following equilibrium:



What change should be made in order to increase the value of K_p for this reaction?

- A) Increase the temperature. D) Decrease the pressure.
 B) Decrease the temperature. E) Nothing; K_p cannot be changed.
 C) Increase the pressure.

Explain your reasoning:

