Skill Practice 66

Le Chatelier's Practice

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour: \_\_\_\_\_

1. Consider the following reaction: PCl5 (g) 🡨🡪 PCl3 (g) + Cl2 (g).
   1. If at equilibrium the concentration of PCl5 is 2 M, the concentration of PCl3 is 3 M and the concentration of Cl2 is 4 M, calculate the equilibrium constant.
   2. Will more reactants or more products be produced if the pressure decreases? Explain.
   3. Assume the reaction is endothermic. In order to increase the amount of products would you want to increase or decrease the temperature? Explain.
2. The amount of products of a certain reaction increased when the temperature was raised. Is the reaction endothermic or exothermic? (Hint: think of LeChatelier’s Principle and whether the energy would be written on the left or right side of the equation.)
3. Nitrogen and hydrogen gases react to form ammonia: N2 (g) + 3 H2 (g) 🡨🡪 2 NH3 (g). It is an exothermic reaction.
4. Would more NH3 (g) be produced if the pressure was increased? Explain.
5. Would more NH3 (g) be produced if the temperature was increased? Explain.
6. Describe what would happen if some H2 were removed from the container.
7. Consider the following equilibrium: SO2Cl2 (g) 🡨🡪 SO2 (g) + Cl2 (g). The H of the reaction is 121.4 kJ. Consider LeChatelier’s principle when answering the following questions.
8. Would more SO2Cl2 be produced if the pressure was increased? Explain.
9. Would more SO2Cl2 be produced if the temperature was increased? Explain.
10. Describe what would happen if some Cl2 were removed from the container.