

Day 7.3 Warm-Up

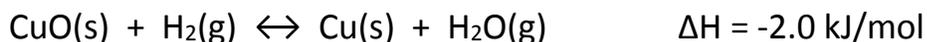
1.



After the equilibrium represented above is established, some pure $\text{O}_2(\text{g})$ is injected into the reaction vessel at constant temperature. After equilibrium is reestablished, which of the following has a lower value compared to its value at the original equilibrium?

- K_{eq} for the reaction.
- The total pressure in the reaction vessel.
- The amount of $\text{SO}_3(\text{g})$ in the reaction vessel.
- The amount of $\text{O}_2(\text{g})$ in the reaction vessel.
- The amount of $\text{SO}_2(\text{g})$ in the reaction vessel.

2.



When the substances in the equation above are at equilibrium at pressure P and temperature T, the equilibrium can be shifted to favor the products by

- Increasing the pressure by means of a moving piston at constant T
- Increasing the pressure by adding an inert gas such as nitrogen
- Decreasing the temperature
- Allowing some gases to escape at constant P and T
- Adding a catalyst

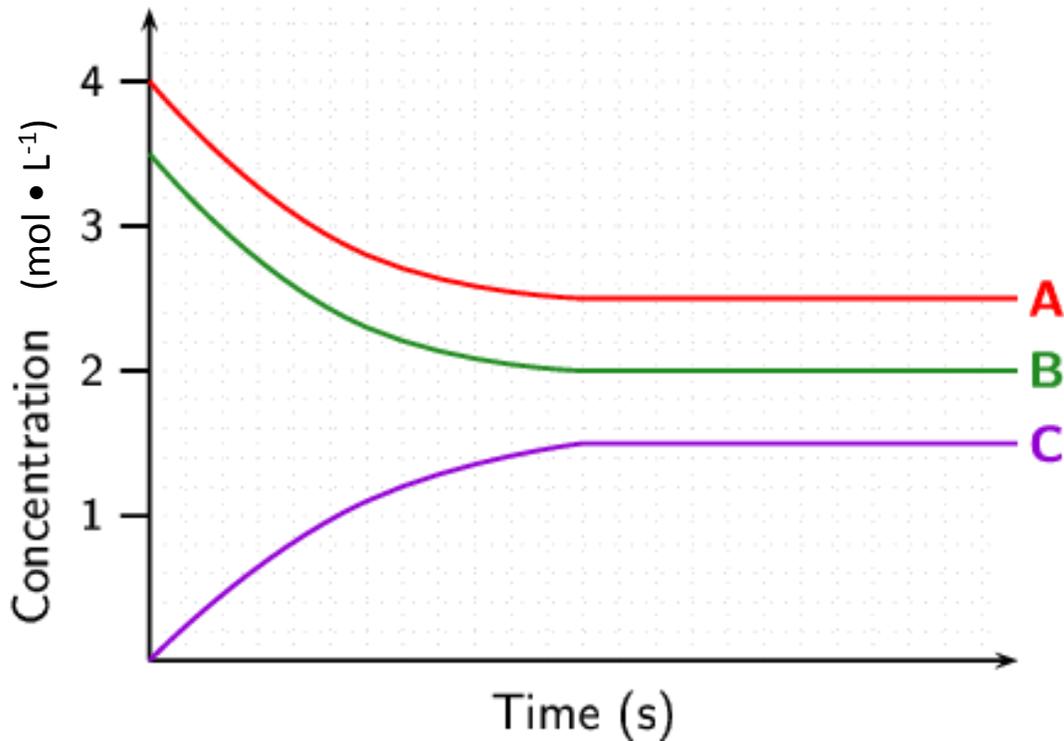
3.



Some PCl_3 and Cl_2 are mixed in a container at 200°C and the system reaches equilibrium according to the equation above. Which of the following causes an increase in the number of moles of PCl_5 present at equilibrium?

- Decreasing the volume of the container.
 - Raising the temperature.
 - Adding a mole of He gas at constant volume.
- I only
 - II only
 - I and III only
 - II and III only
 - I, II, and III

4. Determine the value of K_c for the reaction: $A(g) + B(g) \leftrightarrow C(g)$ given the following graph. Is this reaction reactant or product favored? Justify your answer.



5. For the reaction below, when equilibrium is established at 900°C, [CO] is 0.400 M, [H₂] is 0.400 M, and [H₂O] is 1.00 M. What is the value of K_c at this temperature? What is the value of K_p at this temperature?

