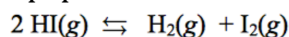
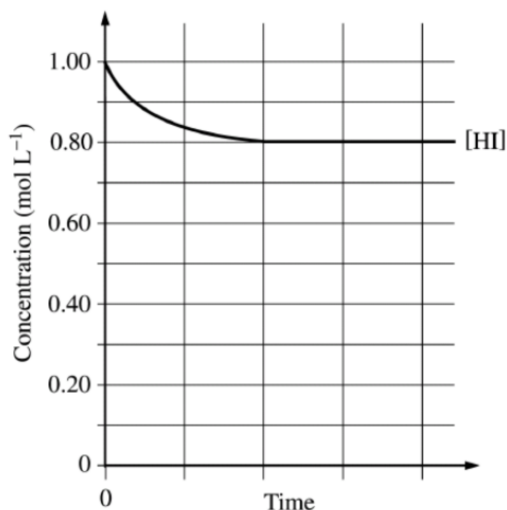


Blizzard Day # 1 AP CHEM
Answer on another sheet of paper



After a 1.0 mole sample of $\text{HI}(g)$ is placed into an evacuated 1.0 L container at 700. K, the reaction represented above occurs. The concentration of $\text{HI}(g)$ as a function of time is shown below.

- (a) Write the expression for the equilibrium constant, K_c , for the reaction.



- (b) What is $[\text{HI}]$ at equilibrium?
- (c) Determine the equilibrium concentrations of $\text{H}_2(g)$ and $\text{I}_2(g)$.
- (d) On the graph above, make a sketch that shows how the concentration of $\text{H}_2(g)$ changes as a function of time.
- (e) Calculate the value of the following equilibrium constants at 700. K.
(i) K_c
(ii) K_p
- (f) At 1,000 K, the value of K_c for the reaction is 2.6×10^{-2} . In an experiment, 0.75 mole of $\text{HI}(g)$, 0.10 mole of $\text{H}_2(g)$, and 0.50 mole of $\text{I}_2(g)$ are placed in a 1.0 L container and allowed to reach equilibrium at 1,000 K. Determine whether the equilibrium concentration of $\text{HI}(g)$ will be greater than, equal to, or less than the initial concentration of $\text{HI}(g)$. Justify your answer.