Calculation of K_c/K_p

1. Calculate K_p for the following reaction at 125°C.

 $2 \text{ NH}_3(g) \rightleftharpoons N_2(g) + 3 \text{ H}_2(g)$

The equilibrium pressures are: $P_{NH_3} = 0.541 \text{ atm}, P_{N_2} = 3.73 \text{ atm}, \text{ and } P_{H_2} = 11.2 \text{ atm}$

2. Consider the following reaction at 100°C. The initial concentration of $[CO_2] = 0.325$ M and $[H_2] = [H_2] = 0.00768$ M. The equilibrium concentration of [CO] = 0.0821 M.

$$CO_2(g) + H_2(g) \rightleftharpoons CO(g) + H_2O(g)$$

a) Write an ICE table.

 $CO_2(g) + H_2(g) \rightleftharpoons CO(g) + H_2O(g)$

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b) Calculate the equilibrium concentrations of each species.

c) Calculate K_c.

d) Are there more reactants or products at equilibrium?