

Teacher's Tools[®] Chemistry
Chemical Equilibrium: Worksheet 2 Answer Key

1. B.
2. C.
3. C.
4. C.
5. B.
6. B.
7. C.
8. B.
9. B.
10. B.
11. A
12. C.
13. OMIT—question is unclear.

PROBLEMS

1. $K_c = 0.0634$

2. (A) $K_p = (P_{\text{NH}_3})(P_{\text{HCl}}) = 0.11$ (B) $P_{\text{HCl}} = 0.23 \text{ atm}$ and $P_{\text{NH}_3} = 0.46 \text{ atm}$.

(C) Solve to get $x = 0.17 \text{ atm}$ Convert to moles of each gas = $0.007 \text{ moles} = \text{moles of NH}_4\text{Cl produced}$ Mass of NH_4Cl produced = 0.375 grams

3. (A) Equilibrium concentration of $\text{NO}_2(\text{g}) = 0.0532 \text{ M}$. (B) $K_c = 0.211$ (C) $0.0028 \text{ M} = [\text{N}_2\text{O}_4]$

4. $[\text{N}_2] = [\text{O}_2] = 0.13 \text{ M}$ and $[\text{NO}] = 0.026 \text{ M}$

5. (A) $K_c = 0.477$

(B) Since there are the same of gaseous moles on each side of the chemical equation, the reaction will NOT shift to counter the pressure decrease. There will be no change in the equilibrium concentration of water vapor.

6. (A) $[\text{CO}] = [\text{H}_2\text{O}] = 0.03 \text{ M}$ and $[\text{CO}_2] = [\text{H}_2] = 0.07 \text{ M}$

(B) $[\text{CO}] = [\text{H}_2\text{O}] = 0.027 \text{ M}$ and $[\text{CO}_2] = [\text{H}_2] = 0.053 \text{ M}$