

# CHAPTER 17 STUDY GUIDE

## Chemical Equilibrium

### Section 17.1 Equilibrium: A State of Dynamic Balance

*In your textbook, read about chemical equilibrium.*

**Complete each statement.**

1. When a reaction results in almost complete conversion of reactants to products, chemists say the reaction goes to \_\_\_\_\_.
2. A reaction that can occur in both the forward and the reverse directions is called a(n) \_\_\_\_\_.
3. \_\_\_\_\_ is a state in which the forward and reverse reactions balance each other because they take place at equal rates.
4. At equilibrium, the concentrations of reactants and products are \_\_\_\_\_ but that does not mean that the amounts or concentrations are \_\_\_\_\_.
5. Equilibrium is a state of \_\_\_\_\_, not one of \_\_\_\_\_.

*In your textbook, read about equilibrium expressions and constants.*

**For each statement below, write *true* or *false*.**

- \_\_\_\_\_ 6. The law of chemical equilibrium states that at a given pressure, a chemical system may reach a state in which a particular ratio of reactant to product concentrations has a constant value.
- \_\_\_\_\_ 7. The equation  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$  is an example of a homogeneous equilibrium.
- \_\_\_\_\_ 8. If an equilibrium constant has a value less than one, the reactants are favored at equilibrium.
- \_\_\_\_\_ 9. The value for  $K_{\text{eq}}$  is constant only at a specific volume.
- \_\_\_\_\_ 10. If the equilibrium constant for a reaction at 300 K is 49.7, the concentration of the reactants will be greater than the concentration of the products.
- \_\_\_\_\_ 11. A heterogeneous equilibrium means that reactants and products are present in more than one state.
- \_\_\_\_\_ 12. The product of the forward chemical reaction is HI, for the equilibrium expression:

$$K_{\text{eq}} = \frac{[\text{HI}]^2}{[\text{H}_2][\text{I}_2]}$$

# Equilibrium Study Guide Key

**Linda Wilson, Mark Maier**



## Equilibrium Study Guide Key:

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