

7. Equilibrium

Starter Quiz · 课前小测

AP Chemistry

Name: _____ Score: _____

- At equilibrium, the forward and reverse reaction rates are...
 - ☐ equal
 - ☐ both zero
 - ☐ increasing
- The symbol $\rightleftharpoons$ in an equation means the reaction is...
 - ☐ reversible
 - ☐ irreversible
 - ☐ explosive
- If $Q < K$, the reaction shifts...
 - ☐ forward (toward products)
 - ☐ backward (toward reactants)
 - ☐ it is at equilibrium
- At equilibrium $[\text{product}] = 6$ and $[\text{reactant}] = 3$ (coefficients 1). Find K .

- A large K (much greater than 1) means the equilibrium favours...
 - ☐ products
 - ☐ reactants
 - ☐ neither side
- A reaction has $K = 5$. What is K for the reverse reaction? (as a decimal)

- In an ICE table, a reactant's equilibrium amount is written as...
 - ☐ initial minus x
 - ☐ initial plus x
 - ☐ just x
- At equilibrium, both the forward and reverse reactions have stopped.
 - ☐ True
 - ☐ False

- A reaction has $K = 3$. If you double every coefficient, the new K is...?

- At equilibrium the reactant concentration reaches zero.

☐ True ☐ False

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Answers · 答案

AP Chemistry

1. **equal**

Equal rates keep the concentrations constant.

2. **reversible**

A double arrow marks a reversible reaction.

3. **forward (toward products)**

Too few products means it moves forward to make more.

4. **2**

$$K = 6/3 = 2.$$

5. **products**

Large K means the reaction nearly goes to completion – product-favoured.

6. **0.2**

Reversing gives $1/K = 1/5 = 0.2$.

7. **initial minus x**

Reactants are used up, so their amount is (initial $-x$).

8. **False**

Equilibrium is dynamic – both keep running at equal rates.

9. **9**

Doubling gives $K^2 = 3^2 = 9$.

10. **False**

Both reactants and products remain present.