

Equilibrium Constant Quiz PDF

Equilibrium Constant Quiz PDF

Disclaimer: *The equilibrium constant quiz pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.*

For the reaction $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$, what is the expression for K_c ?

- $[\text{NH}_3]^2 / [\text{N}_2][\text{H}_2]^3$
- $[\text{N}_2][\text{H}_2]^3 / [\text{NH}_3]^2$
- $[\text{NH}_3]^2 / [\text{N}_2]^2[\text{H}_2]^3$
- $[\text{N}_2][\text{H}_2]^3 / [\text{NH}_3]$

Which of the following are characteristics of a system at equilibrium? (Select all that apply)

- Forward and reverse reactions occur at the same rate
- Concentrations of reactants and products are equal
- The system is static
- The macroscopic properties are constant

Explain how temperature affects the equilibrium constant of an exothermic reaction.

In the context of equilibrium, what does a large K value indicate?

- The reaction is fast
- The reaction is slow
- Products are heavily favored
- Reactants are heavily favored

If $K_c > 1$ for a reaction, what does this indicate about the reaction at equilibrium?

- Reactants are favored
- Products are favored
- The reaction is at its midpoint
- The reaction is not at equilibrium

What conditions can change the value of the equilibrium constant (K)? (Select all that apply)

- Temperature
- Pressure
- Concentration
- Catalyst presence

What is the unit of K_c for the reaction $2A(g) + B(g) \rightleftharpoons 3C(g)$?

- M²
- M⁻¹
- M⁻²
- Unitless

Which of the following statements is true regarding the reaction quotient (Q)?

- Q is always equal to K at equilibrium
- Q can predict the direction of the reaction shift
- Q is only calculated at equilibrium
- Q is independent of reactant concentrations

In an ICE table, what does the 'C' stand for? (Select all that apply)

- Change
- Concentration
- Constant
- Coefficient

What is the significance of a reaction having an equilibrium constant (K) close to 1?

Which of the following are true for a reaction with $K_c < 1$? (Select all that apply)

- The reaction favors reactants
- The reaction favors products
- The forward reaction is predominant
- The reverse reaction is predominant

Provide an example of an industrial process that utilizes the concept of equilibrium constant and explain its importance.

Which of the following statements are true about K_p ? (Select all that apply)

- K_p is used for reactions involving gases
- K_p is always equal to K_c
- K_p depends on the change in moles of gas
- K_p is affected by changes in pressure

How does Le Chatelier's Principle help predict the effect of pressure changes on a gaseous equilibrium?

What can be deduced if $Q < K$ for a reaction? (Select all that apply)

- The reaction will shift to the right
- The reaction will shift to the left
- More products will form
- More reactants will form

Which of the following is true about the equilibrium constant (K) when a reaction is at equilibrium?

- K is always equal to 1
- K is greater than 1
- K is less than 1
- K is constant at a given temperature

What does the equilibrium constant (K) represent in a chemical reaction?

- The speed of the reaction
- The ratio of products to reactants at equilibrium
- The amount of energy released
- The initial concentration of reactants

Discuss why the equilibrium constant does not provide information about the speed of a reaction.

Describe the process of setting up an ICE table for a reaction and its purpose.

Which factor does NOT affect the value of the equilibrium constant?

- Temperature
- Concentration of reactants
- Pressure
- Catalysts