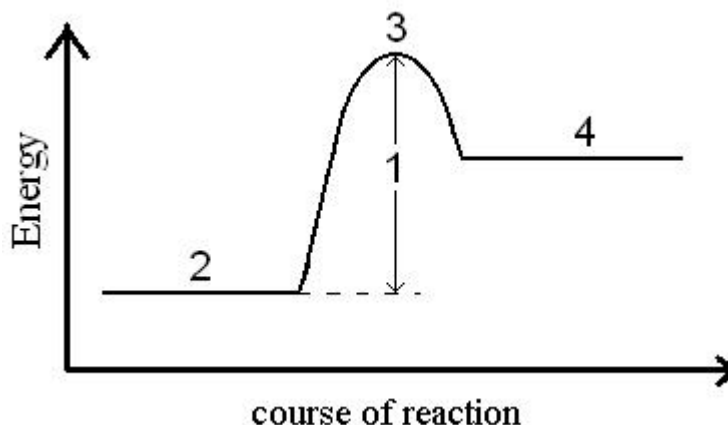


Kinetics Worksheet 1

1. What does the reaction rate indicate about a particular chemical reaction?
2. According to the collision theory, what must happen for two molecules to react?
3. How would the rate of the reaction $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$ states as the consumption of hydrogen compare with the rate stated as the consumption of oxygen?
4. How do temperature, concentration, and surface area affect the rate of the chemical reaction?
5. How does the collision model explain the effect of concentration on the reaction rate?
6. How does the activation energy of an uncatalyzed reaction compare with that of the catalyzed reaction?
7. What does the activation energy for a chemical reaction represent?
8. Suppose two molecules that can react collide. Under what circumstances do the colliding molecules not react?
9. If $\text{A} \rightarrow \text{B}$ is exothermic, how does the activation energy for the forward reaction compare with the activation energy for the reverse reaction ($\text{A} \leftarrow \text{B}$)?
10. Explain how a catalyst affects the activation energy for a chemical reaction.
11. On the accompanying energy level diagram, match the appropriate number with the quantity it represents.

- a. reactants
- b. activated complex
- c. products
- d. activation energy



12. ΔH for a reaction is negative. Compare the energy of the products and the reactants. Is the reaction endothermic or exothermic?