

Z & Z Objectives Chapter 12 Chemistry II

1. Define *reaction rate*. What units are most commonly used to describe reaction rate?
2. Write a generalized equation that describes reaction rate.
3. Define these terms:
intermediate product elementary step rate-determining step
rate law
4. Describe reaction mechanisms. How is a reaction mechanism different from an overall equation?
5. Write out an example for a multi-step reaction mechanism and its overall equation. Identify an intermediate product and the elementary steps.
6. Define and differentiate between two types of rate laws.
7. Given a set of data, be able to determine the rate law by method of initial rates, order of the overall reaction, and the constant k for the reaction.
8. Construct generalized equations demonstrating first, second, third and zero order rate laws.
9. For a particular reaction, $\text{rate} = k[\text{A}]^2[\text{B}]$. How will the rate of reaction change if the concentration of A is tripled? How will the rate of reaction change if the concentration of B is tripled?
10. Describe and relate to each other the following terms:
collision theory effective collision ineffective collision activation energy
11. What two factors influence whether or not a collision will result in product formation?
12. Draw labeled diagrams that describe endothermic and exothermic reactions. Label activation energy in both.
13. Relate the term *activated complex* to *transition state*.
14. Describe five general factors that affect reaction rates and relate each to the Collision Theory.
15. Why does a catalyst increase the rate of a reaction?
16. What is the difference between a homogeneous catalyst and a heterogeneous one?
17. Would a given reaction necessarily have the same rate law for both a catalyzed and an uncatalyzed reaction? Explain.