

Independent Study for the Rates Unit

1. Calculate the rate of a reaction given changes in concentration and time. - page 361
2. Describe the difference between average rate and instantaneous rate. 362-363
3. When is a secant used and when is a tangent used and how is the slope of a line connected to the rate of a reaction. 362-363
4. Understand how the shape of a graph comparing changes in concentration to the reaction rate is connected to the rate of a reaction - page 362-363, 378
5. Calculate the rate of the reaction with respect to one of the chemicals when given the rate of the reaction in terms of a different chemical - page 363
6. Describe three ways how reaction rates can be measured p 365
7. Describe the five factors that affect the rate of a reaction p 367
8. Explain the theory behind the five factors that affect the rate of a reaction p 392
9. Describe the collision theory
10. Describe how each of the five factors, that affect the rate of reaction, influence the collision frequency or effectiveness of the collision 383, 385
11. Describe the impact on the distribution of kinetic energy in a substance when temperature is increased. p383, 392
12. Describe the term activation energy, activated complex p384-386
13. Label a potential energy graph that describes an exothermic or endothermic reaction p386-387
14. Describe the "Rate Law" and how it connects with concentration p 372
15. Determine how to derive a rate law and how to determine the order of reaction p373
16. Determine the rate law of a reaction given initial concentrations or descriptions of how initial concentrations affect the rate of a reaction p 374-377
17. How is half life connected to reaction orders? p 379 (do not cover half life rate constant equation)
18. Explain how a reaction mechanism is derived p 387-391
 - a. Elementary steps
 - b. Rate determining step
 - c. Reaction intermediates
 - d. Three rules that must be followed