Calculus 120, Chapter 5 Summary ~ things you should know

notes by Tim Pilachowski

Important concepts:

exponential growth model $P(t) = P_0 e^{kt}$

exponential decay model $P(t) = P_0 e^{-\lambda t}$

compound interest model $A = P\left(1 + \frac{r}{m}\right)^{mt}$

continuous compounding model $A = Pe^{rt}$

recognizing variables as used in a given formula

Be able to:

solve word problems involving $P(t) = P_0 e^{kt}$, including but not necessarily limited to solving for P, P_0, k or t, as well as formulating an equation from given information.

solve word problems involving $P(t) = P_0 e^{-\lambda t}$, including but not necessarily limited to solving for P, P_0, λ or t, as well as formulating an equation from given information.

find an accumulated amount given principal, interest rate and number of compounding periods.

solve word problems involving $A = Pe^{rt}$, including but not necessarily limited to solving for A, P, r or t, as well as formulating an equation from given information.

solve word problems involving a given formula, including but not necessarily limited to answering questions about any of the variables and finding derivatives.

Review exercises from the text (13th edition):

Chapter 5 Review of Fundamental Concepts: 1 – 6

Chapter 5 Supplementary Exercises: 1, 3 – 16, 23 – 25 (answers to odd-numbered problems are in the back)