

MA 22400 – Topics List

Functions of One Variable

- I. Finding definite and indefinite integrals using integration by parts
 - Both given the definite/indefinite integral and in word problems
- II. Evaluating improper integrals
 - Given the improper integral
- III. Numerical integration using the trapezoidal rule
 - Both given the definite integral and n , and in word problems

Functions of Two Variables

- I. Introduction to functions of two variables
 - Evaluating given a point
 - Finding the domain
 - Sketching level curves
- II. Partial derivatives
 - Finding first order partial derivatives
 - Evaluating a partial derivative at a given point
 - Finding second order partial derivatives
 - Finding the derivative using the chain rule
- III. Applications of partial derivatives
 - Determining substitute and complementary commodities
 - Finding the rate of change in word problems
 - Using marginal analysis to estimate the change in a function
 - Using incremental approximation to estimate the change in a function (note – the text instructions in these problems says to “use calculus to estimate” the change)
- IV. Optimizing functions of two variables
 - Finding and classifying critical points given a function and in word problems