

Math 124 Study Guide for Exam 3

Idea: Go through the suggested problems listed in the syllabus and then do the problems suggested below.

Chapter 5 : The Definite Integral

5.1 Accumulated change

Given velocity function, how to estimate distance traveled using under and over estimates

extra: p224 # 3, 17, p246 # 1

5.2 The definite integral

Given an interval, dividing into n pieces, writing down left hand sum, definite integral as limit of left hand sums

extra: p247 # 7, 9, 12

5.3 The definite integral as area

Relation between integrals and areas (when $f > 0$ and when $f < 0$), area between two curves

extra: p247 # 3, 4

5.4 Interpretations of the definite integral

Definite integral of rate of change in F gives change in F . What are the units?

extra: p246 # 2

5.5 The fundamental theorem of calculus

Using the fundamental theorem to find change in F given $F'(x)$.

extra: p247 # 13, 14, 15, 21

FOT Second fundamental theorem and properties of definite integrals

How to take derivative of a function defined with integral of other function, properties

extra: p254 1, 3, 5, 9

Chapter 3 : Shortcuts to differentiation

3.1 Derivative formulas for powers and polynomials

How to take derivative of sum of two functions, constant multiple of a function, power rule

extra: p157 # 1, 3, 7

3.2 Exponential and logarithmic functions

Exponential functions and $\ln(x)$

extra: p157 # 2, 9, 15

3.3 The chain rule

See middle of p148 for combined chain rule and power rule, and others

extra: p157 # 11, 13, 25, 27