

Math 1401 Final Exam Overview

Chapter 5

Fundamental Theorem of Calculus

Integration

- Substitution
- Integration by Parts
- Using tables
- Improper Integrals
- Approximate Integration (Simpson's rule and Trapezoidal rule)

Chp 5 review p435 #17, 21, 27, 39, 40, 43, 47, 55, 57, 59 (ans #40 $\sqrt[3]{1-\cos^2 x}(-\sin x) = -(\sin x)^{5/3}$)

Chapter 6

Find area between curves (dx or dy?)

Volumes- using cross-sections

Average Value

Work- spring problems

Chp 6 review p494 #1,7,19,26,12 (ans #26 is 26/9)

Chapter 7

Direction fields

Euler's method

Solve separable differential equation

Exponential Growth and Decay

Chp 7 review p551 #3a,b, 4,5,11 (ans #4: a. 1.08 b. 1.1292 c. 1.1905)

Chapter 8

Sequences

Series

Series tests: test for divergence, integral, comparison, limit comparison, ratio

Power series

Writing functions as power series: from geometric or derivative/integral of, Taylor series, Maclaurin series, Binomial series

Chp 8 review p632 #9-15 odd, 19, 31, 33, 37, 39, 41, 45