MTH 112
Spring 2021
Outline for Exam 3

04/23/2020

I. Chapter 8 in HWT

A. Section 8.3: Integration by Trigonometric Substitution

Use trigonometric substitution to evaluate integrals containing terms like $x^2 + a^2, x^2 - a^2$, and $a^2 - x^2$.

B. Section 8.4: Integration of Rational Functions by Partial Fractions

Be able to integrate rational functions by partial fraction decomposition.

C. Section 8.6: Numerical Integration

Understand how to set up approximations to integrals via the Trapezoid Rule and Simpson's Rule. Understand how to estimate error in these methods. (All formulas will be provided, but there will be no explanation of what the various terms mean.)

D. Section 8.7: Improper Integrals

Be able to evaluate integrals over infinite domains (Type I Improper Integrals) and integrals where the integrand has a vertical asymptote at an end point of the range of integration (Type II Improper Integrals).

E. Continuous Probability

Be able to normalize the pdf for a continuous random variable over a given sample space. Be able to use a normalized pdf to compute probabilities of outcomes. Know how to compute the expected value of a continuous random variable.