Chapter 8   Technology Application Projects

Mathematica/Maple Module
Riemann, Trapezoidal, and Simpson Approximations

Part I: Visualize the error involved in using Riemann sums to approximate the area under a curve.

Part II: Build a table of values and compute the relative magnitude of the error as a function of the step size Δx.

Part III: Investigate the effect of the derivative function on the error.

Parts IV and **V**: Trapezoidal Rule approximations.

Part VI: Simpson's Rule approximations.

Mathematica/Maple Module
Games of Chance: Exploring the Monte Carlo Probabilistic Technique for Numerical Integration
Graphically explore the Monte Carlo method for approximating definite integrals.

Mathematica/Maple Module
Computing Probabilities with Improper Integrals
Graphically explore the Monte Carlo method for approximating definite integrals.