Math& 152 Calculus II Learning Outcomes

Upon successful completion of Math& 152, the student should be able to:

Calculate the Riemann sum for a given function, partition and collection of evaluation points

Describe a definite integral as:
  the limit of a Riemann sum, the area under a curve, the distance traveled by a moving object, and a total accumulation.

State the appropriate units for a definite integral.

Describe the meaning of the antiderivative of a function.

Calculate the antiderivatives of polynomial, trigonometric, exponential and logarithmic functions.

Calculate the values of definite integrals using antiderivatives and areas.

Approximate the numerical value of a definite integral.

Evaluate a definite integral using a calculator.

State and paraphrase the Fundamental Theorem of Calculus.

Apply the ideas of definite integrals to solve problems of:
  Areas, Volumes, Work, centers of mass, and other assorted applications.
Recognize separable differential equations and to use integration to solve separable initial value problems.

Solve problems of exponential growth and decay and to describe the meanings and limitations of those solutions.

Differentiate the inverse trigonometric functions and to use them with integrals.

Describe the meaning of an improper integral and to evaluate some classes of improper integrals.

To apply the techniques of integration by parts, substitution, partial fraction decomposition and tables of anti-derivatives to evaluate integrals.