Exam 2 Objectives

For Exam #2, a well-prepared student should be able to

- in constructing a Riemann sum, identify the terms in an approximation for one piece that will make a non-zero contribution to the related definite integral

- construct and evaluate a definite integral to compute a quantity of interest, including

    - area of a planar region

    - volume of a solid region

    - length of a curve

    - total from a density

    - accumulation from a rate

- use reasonable judgement to decide whether to evaluate a definite integral exactly or to give a numerical estimate using technology

- find "easy-to-compute" lower and upper bounds as a consistency check on the result of computing a quantity using a definite integral

- use separation of variables to solve a given first-order differential equation

- use an initial condition to determine a specific value for the constant in a general solution to a first-order differential equation

- use a differential equation model to analyze a real-world phenomenon

- understand the connection between constant per capita (or percentage) rate of change and exponential change