SHORT CALCULUS Math 16C Sec 2 Spring 2008
Mid-term exam 2 Study Guide
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Below is a list of the sections covered and how many points on the exam are allocated to the section together with an exhaustive list of types of questions that I might ask on the mid-term exam for each section. The list of types of questions are not given in any order. Note that the total points for the exam is 50.

- Section 7.6 (7 points)
  - Find the minimum or maximum of a functions in several variables subject to one or two constraints using the Lagrange multiplier method.
- Sections 7.8 - 7.9. (17 points)
  - Find the partial integral of a function.
  - Evaluate a double integral.
  - Draw the region of integration given a double integral.
  - Change the order of integration of a double integral.
  - Find the area of a region in 2-dimensions by evaluating a double integral.
  - Find the volume under a surface and above a region by evaluating a double integral.
  - Find the average value of a function over a region by evaluating a double integral.
- Sections 10.1 - 10.4 (26 points)
  - Determine the formula for the nth term of a sequence given explicitly as a list of terms.
  - Find the limit of a sequence.
  - Find the nth partial sum of a geometric series: i.e., $\sum_{i=0}^{n} ar^i = \frac{a(1-r^{n+1})}{1-r}$.
  - Find the sum of a geometric series: i.e., $\sum_{i=0}^{\infty} ar^i = \frac{a}{1-r}$.
  - Given a verbal description of an application, model the application as a geometric series and find the sum of the geometric series to solve the application.
  - Determine whether a series diverges using the nth term test for divergence.
  - Determine whether a geometric series diverges or converges using the geometric series test.
  - Determine whether a p-series diverges or converges using the p-series test.
  - Determine whether a series converges or diverges using the ratio test.
  - Find the radius of convergence of a power series.
  - Find the interval of convergence of a power series.
  - Determine whether a power series converges or diverges at each end point of the interval of convergence.