Quiz 4 MAC-2311 Spring 2013 **Name:** _____

Take-home quiz. Due date: Thursday, March 21. To receive credit you MUST SHOW ALL YOUR WORK.

1. (12 pts) Sketch the graph of the curve $y = e^{-x}$ for $0 \leq x < +\infty$.

(a) Compute the volume of the solid obtained by rotating around the x-axis the region bounded by $y = e^{-x}$ and the x-axis for $0 \leq x < +\infty$.

(b) Compute the surface area of the solid in part (a).

(c) Determine the arc length of the curve $y = e^{-x}$ for $0 \leq x < +\infty$.

Note: For each part of this problem you'll have to evaluate an improper integral. For the one in part (c), the simplest might be to just use a comparison test.