MATH 126 SPRING 2011, QUIZ 7

(1) Consider the region defined by $x = 1, x = 2, y = e^{-x}$.
   a. Find the total volume by rotating this region around the x-axis.

   b. Find the total volume by rotating this region around the y-axis.

(2) Consider the region between two upper semi-circles, the larger one with radius R and the smaller with radius r. Find the volume of the "hollow sphere" by rotating this region around the x-axis.

(3) Rotate the region defined by $y = e^{-x^2}$, $x = 0, x = \sqrt{\ln 2}$ around the y-axis.