MATH 2300-015 QUIZ 4   Name: _____

Due Monday, September 25th at the beginning of class. Please use additional paper as necessary to submit CLEAR and COMPLETE solutions.

1. Find the volume of the solid obtained by rotating the region bounded by the curves

$$y = 0, \ y = (1 - x^2)^{3/4}$$

   around

   (a) the x-axis,
   (b) the line $x = 1$.

2. Find the volume of the solid obtained by rotating the region bounded by the curves

$$y = 0, \ x = 0, \ y = xe^{-x}$$

   around

   (a) the y-axis,
   (b) the line $y = -1$.

   [Note that these are improper integrals.]

3. Find the arclength of the curve $y = \ln x$ for $x \in [1, \sqrt{3}]$.