MTH 252 Homework 9
Due in recitation on May 27, 2010 (Week 9)

Check Problems. Choose the best answer for each question. Please show all required computation.

1. Consider the region bounded by \( y = e^x, x = 0, y = 0 \) and \( x = 2 \). Determine the volume of the solid created by revolving this region around the line \( y = -1 \).
   
   a. 24.34  
   b. 84.34  
   c. 124.34  
   d. 164.34

2. Consider the region bounded by \( y = \sin(x), y = 0, x = 0 \) and \( x = \pi \). Determine the volume of the solid whose base is this region and whose cross-sections perpendicular to the \( x \)-axis are squares.
   
   a. \( \frac{\pi}{4} \)  
   b. \( \frac{\pi}{2} \)  
   c. \( \pi \)  
   d. \( 2\pi \)

3. Determine the area inside the cardioid \( r = 1 - \sin \theta \).
   
   a. \( \frac{\pi}{2} \)  
   b. \( \pi \)  
   c. \( \frac{3\pi}{2} \)  
   d. \( 2\pi \)

Practice Problems:
8.2: 11, 19, 28 - 32, 35
8.3: 1, 3, 5, 7, 9, 13, 17, 19, 21, 23, 25