MATH 160 Homework 29 Name: ____________________

Due 12/02 MATH 160 section __________

1. Find the volume of a solid that lies between planes perpendicular to the x-axis at $x = -1$ and $x = 1$ whose cross-sections perpendicular to the x-axis are circular disks whose diameters run from the parabola $y = x^2$ to the parabola $y = 2 - x^2$.

2. Find the volume of the solid generated by revolving the region enclosed by $y = \sqrt{\cos(x)}$, $y = 0$, $x = 0$, $0 \leq x \leq \pi/2$ about the x-axis.

3. Find the volume of the solids generated by rotating the region enclosed by $x = 0$, $y = 2$ and $y = 2x/3$

   a. about the y-axis.

   b. about the x-axis.

4. Find the volume of the solid generated by rotating the area enclosed by $x = \tan(y)$, $y = 0$, and $x = 1$ about the y-axis.

5. Find the volume of the solid generated by rotating the region enclosed by the triangle with vertices $(1, 0)$, $(2, 1)$, and $(1, 1)$ about the y-axis.

6. Consider the region enclosed by the graphs of $y = 5/7 + x/7$ and $y = \sqrt{1 - x^2}$.

   a. Show algebraically that the graphs of the above two functions intersect at the points $(-4/5, 3/5)$ and $(3/5, 4/5)$.

   b. Write an integral that gives the area of the region between these two functions (do not evaluate the integral).

   c. Write an integral that gives the volume of the solid formed by revolving this region around the x-axis (do not evaluate the integral).

   d. Write an integral that gives the volume of the solid formed by revolving this region around the line $x = -1$ (do not evaluate the integral).