

## Math 125 Worksheet #4

July 17, 2007

1. Let  $R$  = the region bounded by  $y = e^{-x}$ , the  $y$ -axis, and  $x = 1$ . What is the volume of the solid obtained by revolving  $R$  about the line  $y = -2$ ?
2. The base of a solid  $S$  is the region bounded by  $y = \sin(x)$  and the  $x$ -axis for  $0 \leq x \leq \pi$ . Cross-sections of  $S$  perpendicular to the  $x$ -axis are isosceles right triangles. The right angle of each triangle is on the  $x$  axis. What is the volume of  $S$ ? (Fun trigonometric fact of the day:  $\sin^2(x) = \frac{1 - \cos(2x)}{2}$ .)