Warm-Up Problems and Lecture Problems
March 14, 2003

1. Consider the triangle with vertices $(0, 0)$, $(1, 2)$ and $(1, 0)$.

   (a) Find the equation of the line between $(0, 0)$ and $(1, 2)$.

   (b) Rotate this triangle about the line $y = 0$ (the x-axis) and set up an integral representing the volume of revolution. Draw the picture too!

   (c) Rotate this triangle about the line $y = 4$ and set up an integral representing the volume. Draw the picture too!

   (d) Rotate this triangle about the line $x = 0$ and set up an integral representing the volume. Draw the picture too!

   (e) Rotate this triangle about the line $x = 5$ and set up an integral representing the volume. Draw the picture too!

Lecture Problems

2. Sketch the graph of the parametric equation for $-2 \leq t \leq 3$:

$$x = t^2 - 2t \qquad y = t + 1$$

3. Set up an integral representing the length of the curve:

$$x = t^2 \qquad y = e^t \qquad 1 \leq t \leq 4$$