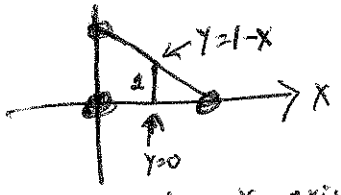
PRINT Your Name:_____

**Quiz 5 — October 3, 2012 – Section 10 – 11:15 – 12:05**

**Remove everything from your desk except a pencil or pen.**

Circle your answer. **Show your work.** Your work should be correct and coherent. **Draw** a meaningful picture.
The quiz is worth 5 points.

Consider a solid $S$. The base of $S$ is the triangular region with vertices $(0,0)$, $(1,0)$, and $(0,1)$. The cross-sections of $S$ perpendicular to the $x$-axis are squares. Find the volume of $S$.




Chop the X-axis from X=0 to X=1.
The slice of S with x-coordinate X is a square with thickness dt:


of volume $s^2 t$,
with $s = 1-x$ and $t = dx$. This slice has Vol $s^2 t = (1-x)^2 dx$
The vol of the solid is $\int_0^1 (1-x)^2 dx = -\frac{(1-x)^3}{3}\Big]_0^1 = \frac{1}{3}$