1. Let $D$ be the region bounded by the $x$ axis, the lines $x = 1$ and $x = 4$ and the graph $y = 10 - \frac{1}{6}x^2$.
   
   (a) Make a rough sketch of the region $D$.

   (b) Find the area of $D$.

2. Let $\Omega$ region bounded by the $x$ axis, the lines $x = 1$ and $x = 10$ and the graph $y = \frac{1}{x^2}$.
   
   Then find the volume when this region is rotated about the $x$ axis.

3. Set up the integral for the length of the curve $y = \tan(x)$ for $0 \leq x \leq \pi/4$. 