

Homework Due May 11th
Math 222, Section 09
May 8, 2007

Do the given problems as well as the following problems from the book: pg 382 #41,43, and pg 340 #9,12,16.

1. Find the area bounded by $\rho = 4 \cos \theta$, $\theta = 0$, $\theta = \pi/4$.
2. Sketch the curve $\rho = 4(1 - \sin \theta)$ and find the area that it encloses.
3. Sketch the curve $\rho^2 = 9 \sin 2\theta$ and find the area that it encloses.
4. Find the area enclosed by the inner loop of the curve $\rho = 1 - \sqrt{2} \cos \theta$.
5. Find the area outside the curve $\rho = 1$ and inside the curve $\rho^2 = 2 \cos 2\theta$.
6. Find the arclength of the spiral $\rho = \theta^2$ for $0 \leq \theta \leq 2\pi$.