

## Homework Due May 11th

### Math 222, Section 03

May 8, 2007

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  $0 \leq \theta \leq 2\pi$ .