

Math 181
Fall, 2008

Name _____

Homework #12
Due Wednesday, October 22
No late homework accepted! No excuses!

1. Find the area enclosed by one loop of the four-leaved rose $r = \cos(2\theta)$.

2. Find the area of the region that lies inside the circle $r = 3 \sin \theta$ and outside the cardioid $r = 1 + \sin \theta$.

3. Find the area of the region that lies inside both curves.

$$r = \sin(2\theta)$$

$$r = \cos(2\theta)$$

4. Find the area inside the larger loop and outside the smaller loop of the limaçon

$$r = \frac{1}{2} + \cos \theta .$$