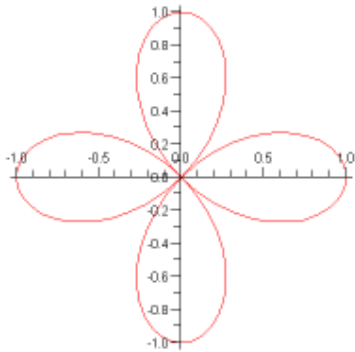


Math 181
Spring 2010

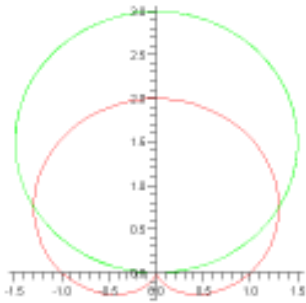
Name _____

Homework #11
Due Thursday, April 29
No late homework accepted! No excuses!

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



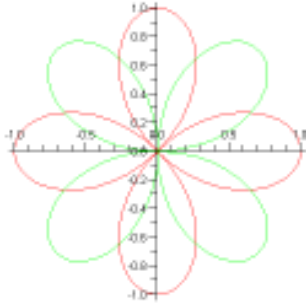
2. Find the area of the region that lies inside the circle $r = 3 \sin \theta$ and outside the cardioid $r = 1 + \sin \theta$.



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

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

