Calculus II	Name:
Study Guide 26	Class:
Due Date:	Score:

No Work \Leftrightarrow No Points



- 1. Consider the cardioid $r=1-\cos\theta$,
 - (a) (3 points) Draw the curve.



(b) (4 points) Find the area of the region in the first quadrant within the cardioid.

- 2. Consider the cardioid $r=1+\sin\theta$,
 - (a) (3 points) Draw the curve.



(b) (4 points) Find the area of the region in the second quadrant within the cardioid.

(c) (4 points) Find the entire area within the cardioid.

(c) _____

(b) _____

- 3. Consider the cardioid $r=2+2\cos\theta~$ and the circle r=3 ,
 - (a) (4 points) Draw both curves and shade the region inside the cardioid and outside of the circle. $\pi/2$



(b) (4 points) Find the area of the shaded region above.

(b) _____

4. (5 points) Find the area bounded by the lemniscate $r^2 = 9\cos 2\theta$.

5. (6 points) Find the slope of the tangent line to the curve $r = \frac{1}{\theta}$ at $\theta = 2$.

6. (6 points) Find the arc length of the curve $r = e^{3\theta}$ for $0 \le \theta \le 2$.

6. _____

5. _____

7. (7 points) Find the arc length of the entire cardioid $r = a(1 - \cos \theta)$.