

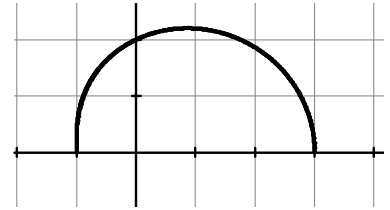
## 9.8 Area Bounded by a Polar Curve

Calculus

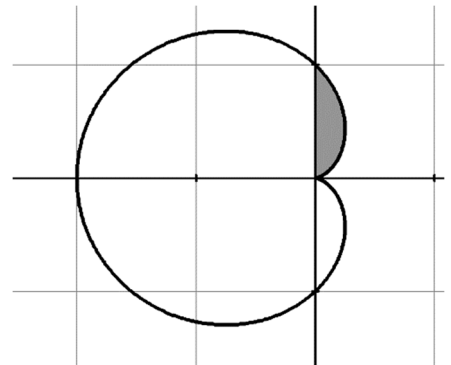
Name: \_\_\_\_\_

CA #1

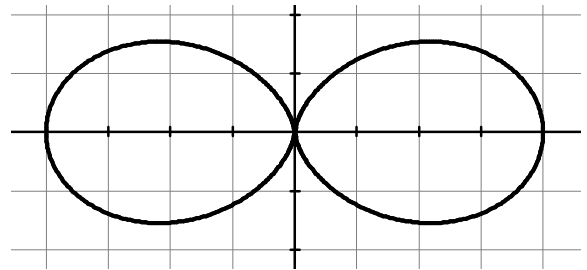
1. The graph to the right shows the polar curve  $r = 2 + \cos \theta$  for  $0 \leq \theta \leq \pi$ . What is the area of the region bounded by the curve and the  $x$ -axis?



2. Find the area of the shaded region for the polar curve  $r = 1 - \cos \theta$ .



3. Find the total area enclosed by the polar curve  $r = 2 + 2 \cos 2\theta$  shown in the figure above.



4. Write do not solve, an integral expression that represents the area enclosed by the smaller loop of the polar curve  $r = 1 - 2 \sin \theta$ .

5. Find the limits of integration required to find the area of one petal of the polar graph  $r = 4 \sin 3\theta$  in the second quadrant.

1. 7.069	2. 0.178	3. 18.850	4. $\frac{1}{2} \int_{\frac{5\pi}{6}}^{\frac{6}{5}} (1 - 2 \sin \theta)^2 d\theta$	5. $\frac{3}{2\pi}, \pi$
----------	----------	-----------	--	--------------------------

Answers to 9.8 CA #1