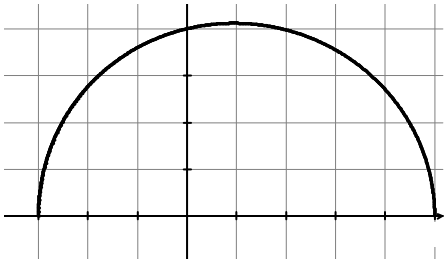
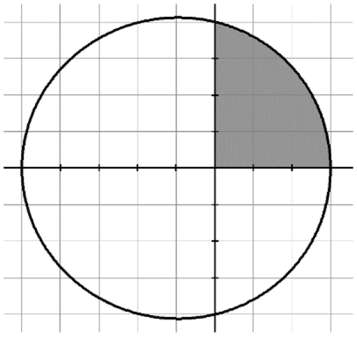
9.8 Area Bounded by a Polar Curve

Calculus Name: _____ **CA #2**

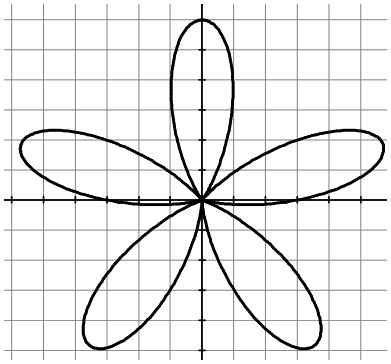
1. The graph above shows the polar curve $r = 4 + \cos\theta$ for $0 \leq \theta \leq \pi$. What is the area of the region bounded by the curve and the x-axis?



2. Find the area of the shaded region for the polar curve $r = 4 - \cos\theta$.



3. Find the total area enclosed by the polar curve $r = 3 + 3\sin 5\theta$ 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 $r = \sqrt{2} - 2\cos\theta$.

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

Answers to 9.8 CA #2

1. 25.918	2. 8.959	3. 42.412	4. $\frac{1}{2}\int_{-\frac{\pi}{4}}^{\frac{\pi}{4}}(\sqrt{2} - 2\cos\theta)^2\, d\theta$	5. $\frac{7\pi}{10}, \frac{9\pi}{10}$