

Area in Polar Coordinates

1. Graph the polar curve $r = 2 \cos \theta - 2$. At what values of θ do $r = 2 \cos \theta - 2$ and the circle $r = 6 \cos \theta$ intersect?
2. Find the area that is inside $r = 4 \cos \theta$ and is in the first quadrant.
3. Find the area inside the inner loop of $r = 1 + 2 \sin \theta$.
4. Find the area inside the limaçon $r = 3 + 2 \sin \theta$ and outside the circle $r = 2$.
5. Find the area inside both the cardioid $r = 3 + 2 \sin \theta$ and the circle $r = 2$.