

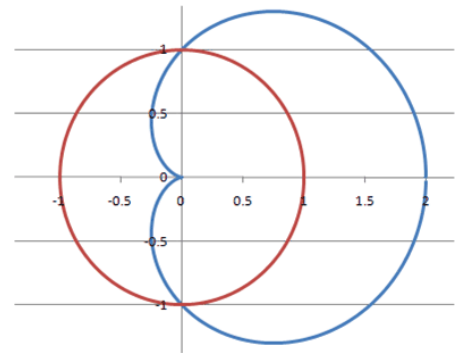
Area of Polar Graphs: AP M/C Practice

1. Determine the area of the inner loop of the polar curve $r = 1 - 2\sin(\theta)$.

- (A) 0.544
- (B) 0.585
- (C) 0.598
- (D) 0.623
- (E) 0.648

2. The graphs of the polar curves $r = 1$ and $r = 1 + \cos(\theta)$ are shown in the figure below. If R is the region that is inside the graph of $r = 1$ and outside of the graph of $r = 1 + \cos(\theta)$, the area of R is:

- (A) 1.127
- (B) 1.215
- (C) 1.275
- (D) 1.235
- (E) 1.375



3. The area of the closed region bounded by the polar graph of $r = \sqrt{3 + \cos \theta}$ is given by the integral:

- (A) $\int_0^{2\pi} \sqrt{3 + \cos \theta} d\theta$
- (B) $\int_0^{\pi} \sqrt{3 + \cos \theta} d\theta$
- (C) $2 \int_0^{\pi/2} (3 + \cos \theta) d\theta$
- (D) $\int_0^{\pi} (3 + \cos \theta) d\theta$
- (E) $2 \int_0^{\pi/2} \sqrt{3 + \cos \theta} d\theta$

4. The area of the region enclosed by the polar curve $r = 1 - \cos \theta$ is

- (A) $\frac{3\pi}{4}$
- (B) π
- (C) $\frac{3\pi}{2}$
- (D) 2π
- (E) 3π