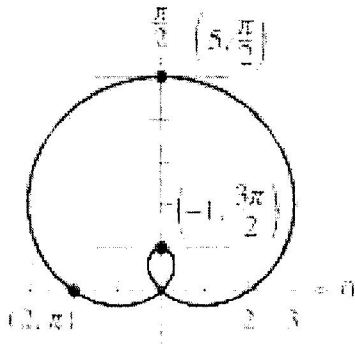


Practice 4.5: Polar Slope

1. Find dy/dx and the slopes of the tangent lines shown on the graph of the polar equation

$$r = 2 + 3\sin \theta.$$



2. Find dy/dx at the given value of θ .

a. $r = 3(1 - \cos\theta)$, $\theta = \pi/2$

b. $r = 3\sin\theta$, $\theta = \pi/3$

3. Find the points of horizontal and vertical tangency (if any) to the polar curve $r = 1 - \sin \theta$.