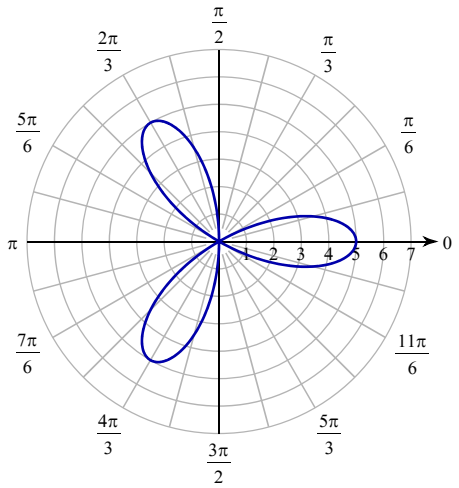
 Name_____

Graphs of Polar Equations

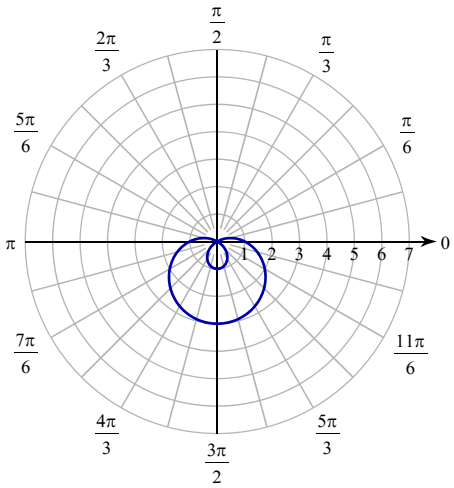
Date_____ Period____

Consider each polar graph. Classify the curve; and determine if the graph is symmetric with respect to the origin, polar axis, and line $\theta=\pi/2$.

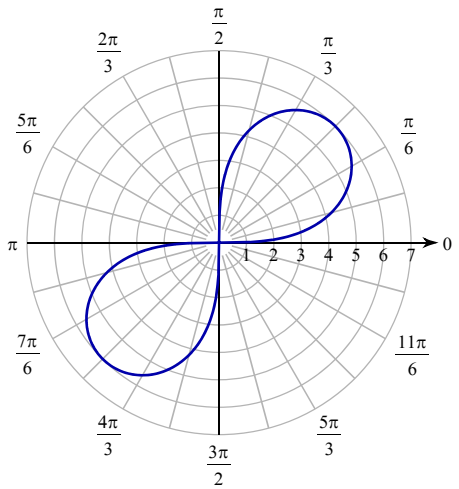
1)



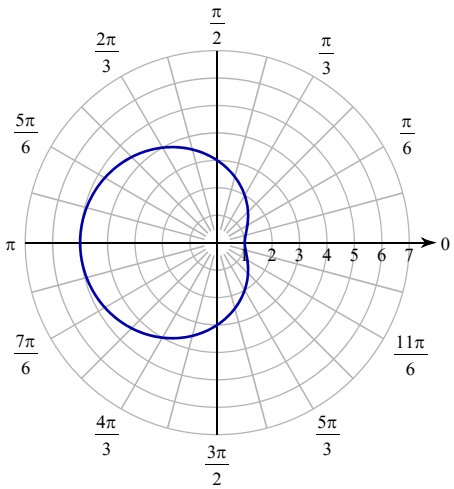
2)



3)

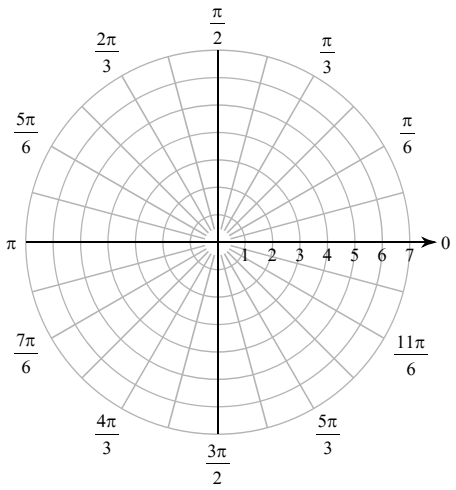


4)

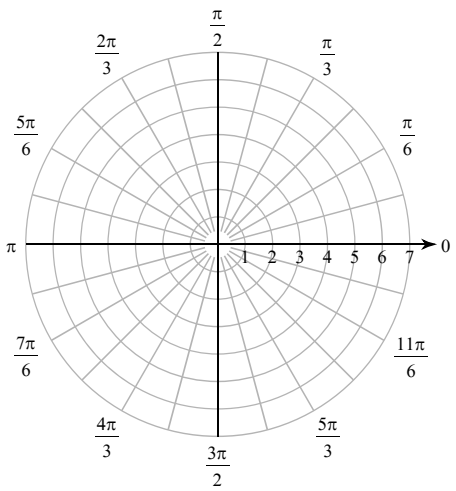


Consider each polar equation over the given interval. Classify the curve; determine if the graph is symmetric with respect to the origin, polar axis, and line $\theta=\pi/2$; find the values of θ where r is zero; find the maximum $|r|$ value and the values of θ where this occurs; and sketch the graph.

5) $r = 6\sin(3\theta),\ 0 \le \theta < \pi$



6) $r^2 = 36\cos(2\theta),\ 0 \le \theta < 2\pi$



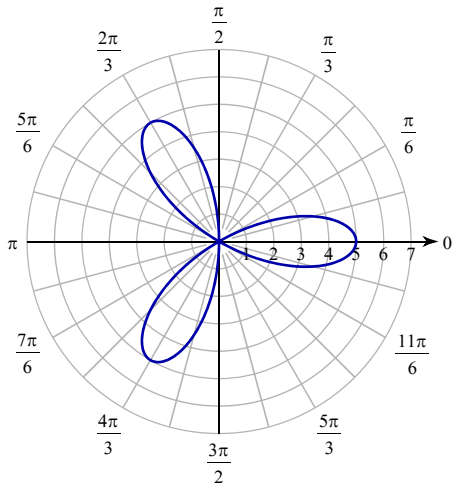
 Name_____

Graphs of Polar Equations

Date_____ Period____

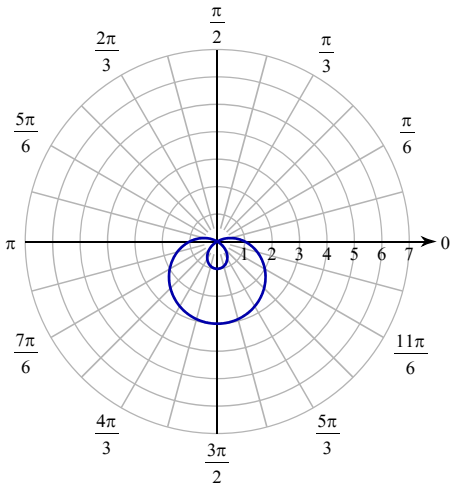
Consider each polar graph. Classify the curve; and determine if the graph is symmetric with respect to the origin, polar axis, and line $\theta=\pi/2$.

1)



Rose
Symmetric about the polar axis

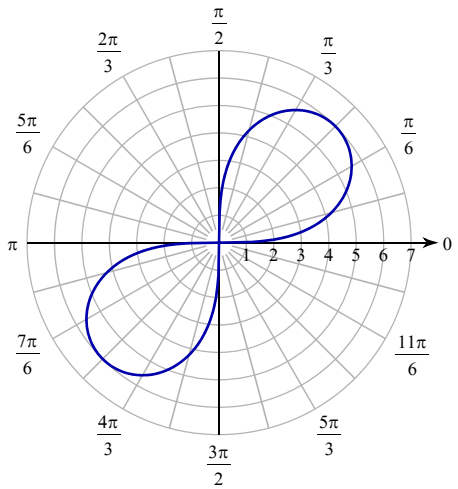
2)



Looped limaçon

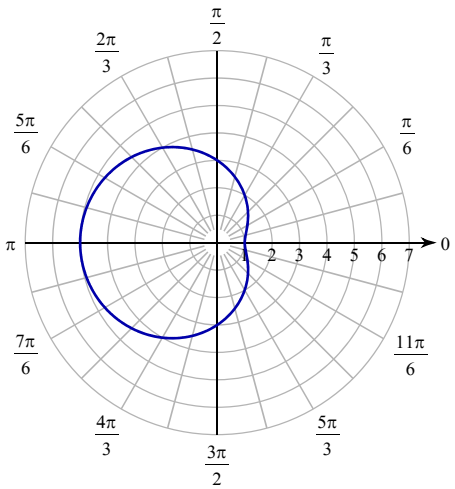
Symmetric about the line $\theta = \frac{\pi}{2}$

3)



Lemniscate
Symmetric about the origin

4)



Dimpled limaçon
Symmetric about the polar axis

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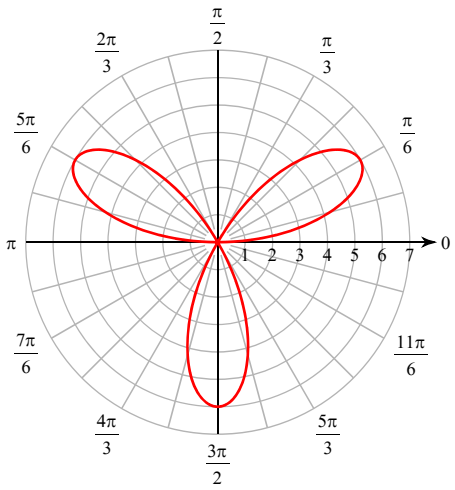
5) $r = 6\sin(3\theta),\ 0 \le \theta < \pi$



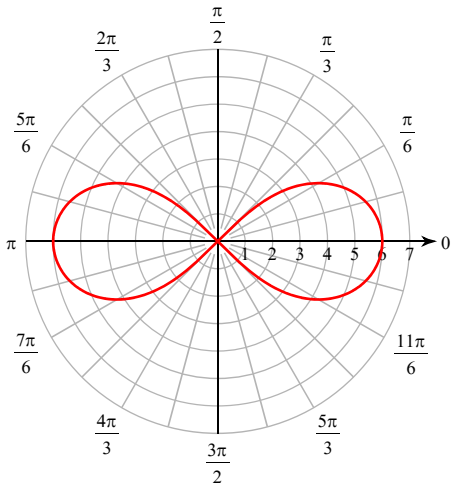
Rose

Symmetric about the line $\theta = \frac{\pi}{2}$

$r = 0$ when $\theta = \left\{0, \frac{\pi}{3}, \frac{2\pi}{3}\right\}$

$|r| = 6$ when $\theta = \left\{\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}\right\}$

6) $r^2 = 36\cos(2\theta),\ 0 \le \theta < 2\pi$



Lemniscate

Symmetric about the the origin, polar axis, and line $\theta = \frac{\pi}{2}$

$r = 0$ when $\theta = \left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$

$|r| = 6$ when $\theta = \{0, \pi\}$