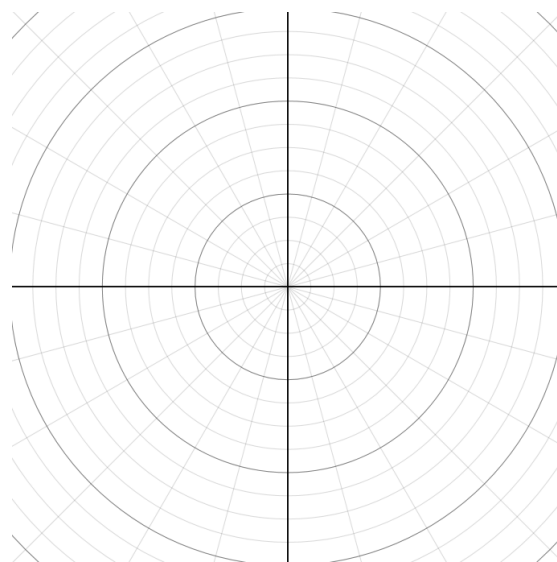


Name : \_\_\_\_\_

1. Consider the point  $\left(-1, \frac{-\pi}{3}\right)$  in polar coordinates.

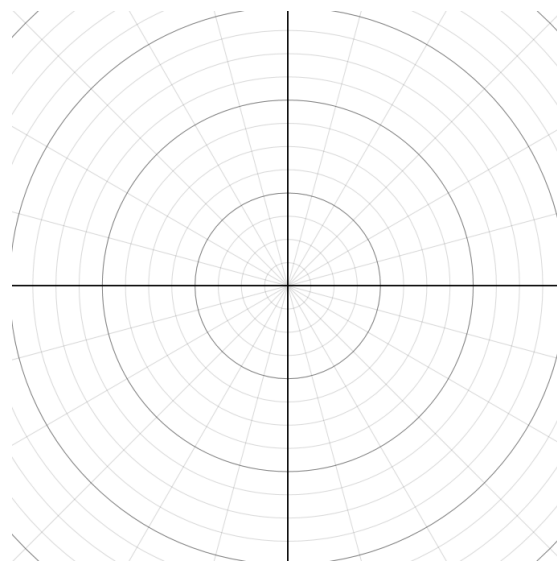
- Graph the point.
- Give two alternative representations for the point.
- Express the point in Cartesian coordinates.



2. Express the point with Cartesian coordinates  $(-1, 0)$  in polar coordinates.

3. Convert the polar equation  $r = \cot \theta \csc \theta$  to Cartesian equations.

4. Graph the polar equation  $r = 3 \sin 2\theta$ .



5. What happens if you remove the 2 from above polar equation?