

# APPC Lesson 8.1 Homework

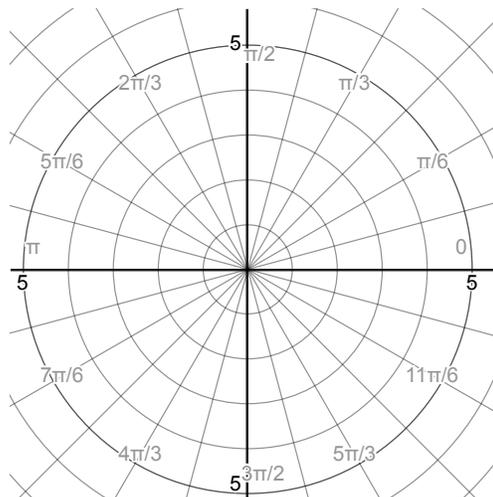
Name \_\_\_\_\_

1. Plot each point on the polar grid. Label the points  $A$ ,  $B$ , and  $C$ .

a.  $\left(4, \frac{2\pi}{3}\right)$

b.  $\left(3, \frac{5\pi}{4}\right)$

c.  $\left(5, -\frac{\pi}{6}\right)$



2. Give three other polar coordinates that represent  $\left(-6, \frac{5\pi}{6}\right)$ .

3. Convert the polar coordinates into rectangular coordinates. Give exact values.

a.  $\left(12, \frac{3\pi}{4}\right)$

b.  $\left(3, -\frac{\pi}{6}\right)$



4. Convert the rectangular coordinates into polar coordinates where  $0 \leq \theta \leq 2\pi$ . Give exact measures when possible. Otherwise, round to the nearest hundredth.

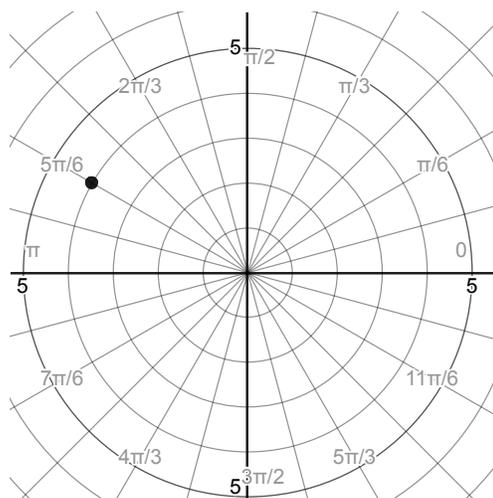
a.  $(3, -4)$

b.  $(-2, 2\sqrt{3})$

5. A point with coordinates  $(a, \theta)$  is shown.

a. Graph  $(a, 2\pi)$ . Label it Point  $K$ .

b. Graph  $(-a, \theta - \frac{\pi}{6})$ . Label it Point  $J$ .



6. Which point is further from the origin: the point with polar coordinates  $(8, \frac{4\pi}{3})$  or the point with rectangular coordinates  $(6, 8)$ ? Explain.

7. Does the point given by the coordinates  $(-3, 16\pi)$  represent the same point as the one given by the coordinates  $(3, 27\pi)$  ? Explain.
8. Cartesian coordinates and polar coordinates can both be used to describe locations on a coordinate plane.
- a. A graph is defined by the Cartesian coordinates  $(x, y)$  , where all points on the graph have 6 as the first coordinate. Describe this set of points.
- b. A graph is defined by the polar coordinates  $(r, \theta)$  , where all points on the graph have 6 as the first coordinate. Describe this set of points.