

Unit 4: Parametric and Polar Equations

Topic: Graphing Polar Coordinates

Objective: SWBAT graph polar coordinates using their knowledge of the unit circle.

Warm Up #2:

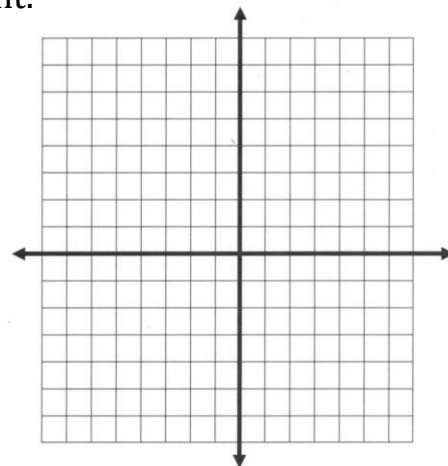
Sketch each of the following angles in the correct quadrant.

a) $\frac{7\pi}{6}$

b) $-\frac{5\pi}{3}$

c) $\frac{9\pi}{4}$

d) $-\frac{3\pi}{4}$

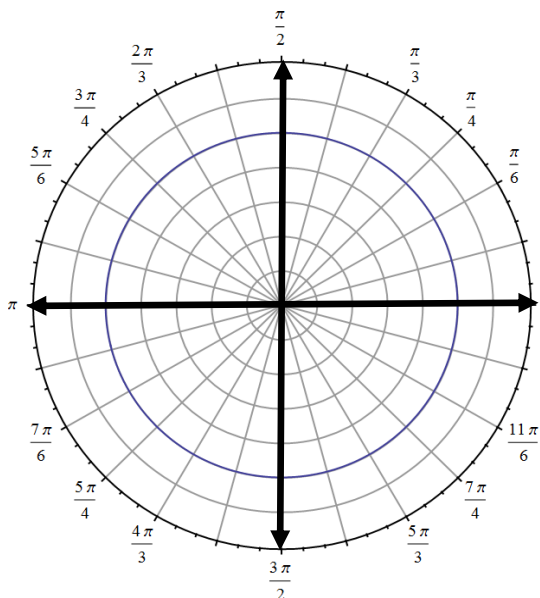


Rectangular coordinates, (x, y) , are useful for expressing functions of y in terms of x . Curves that are not functions are often more easily expressing in an alternative coordinate system called polar coordinates.

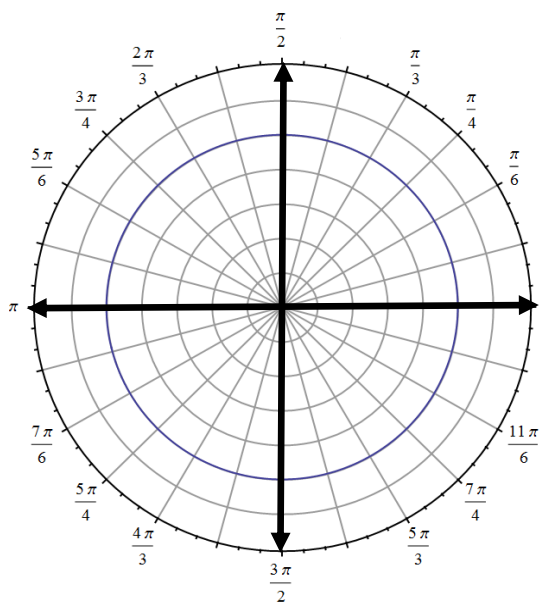
A polar coordinate system has the traditional x and y - axes where the intersection of these axes, the old origin, is now called the pole. Then each point in the plane can be assigned **polar coordinates**, (r, θ) , where r is the directed distance from the pole and θ is the directed angle.

Example: Plot each of the following polar coordinates and then find three additional polar representations of the point for $-2\pi < \theta < 2\pi$.

a) $(4, \frac{\pi}{4})$



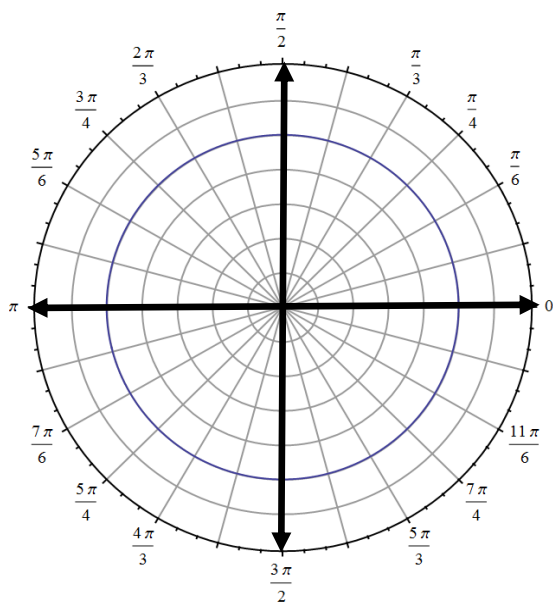
b) $(-2, -\frac{5\pi}{6})$



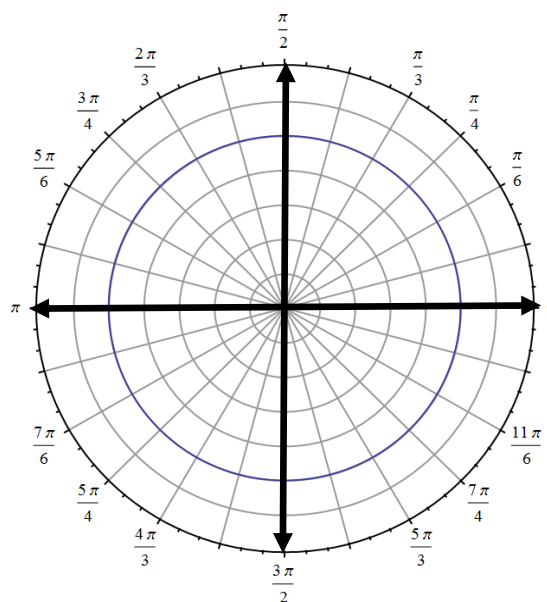
Assignment(s): pg. 743 #5 – 12
Weekly #4 DUE Tomorrow

Problem Set #2: Plot each of the following polar coordinates and then find three additional polar representations of the point for $-2\pi < \theta < 2\pi$.

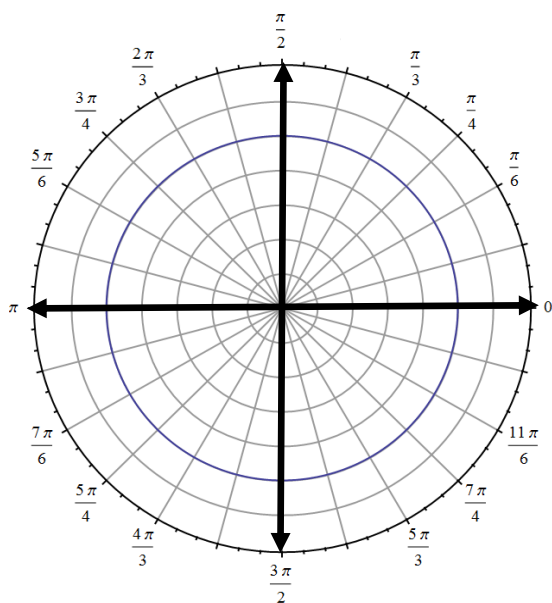
1) $(3, \frac{3\pi}{4})$



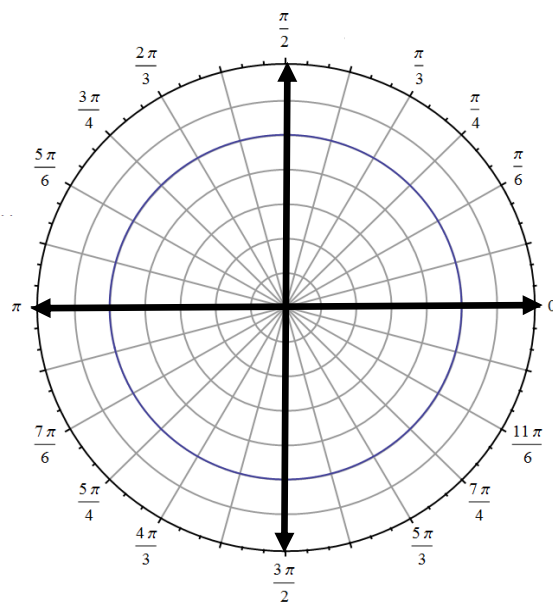
2) $(-\frac{1}{2}, \frac{4\pi}{3})$



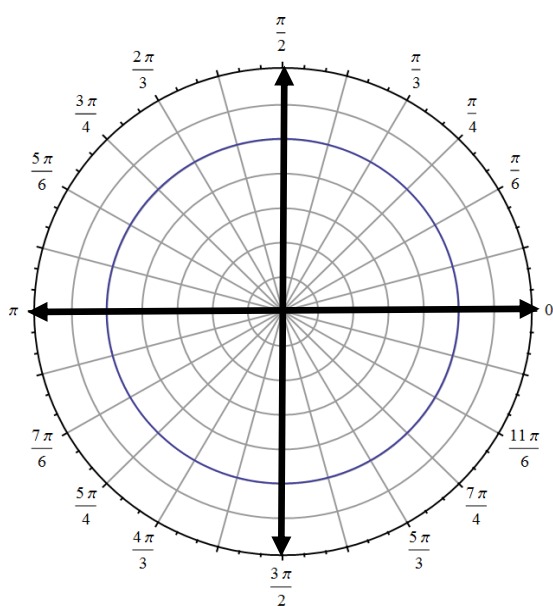
3) $(5, -\frac{\pi}{6})$



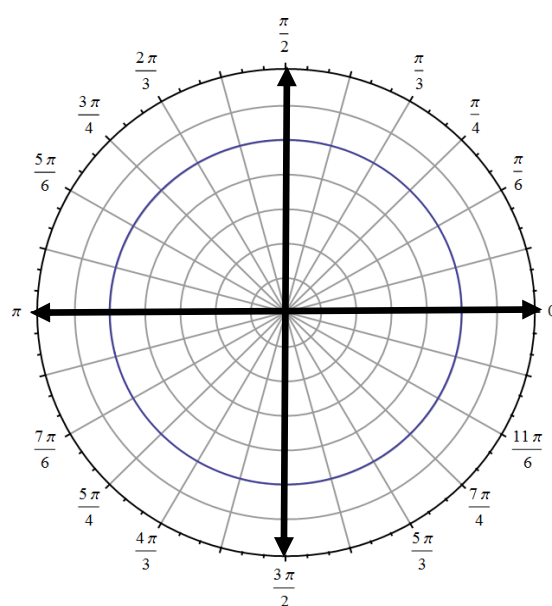
4) $(\sqrt{7}, \frac{11\pi}{6})$



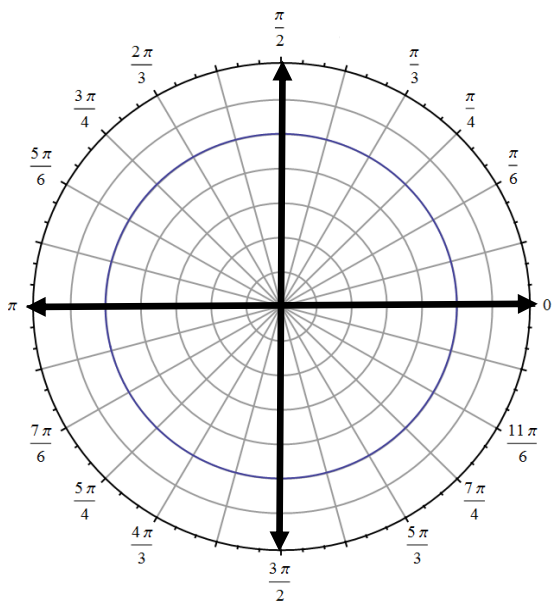
5) $(\frac{3}{4}, \frac{5\pi}{3})$



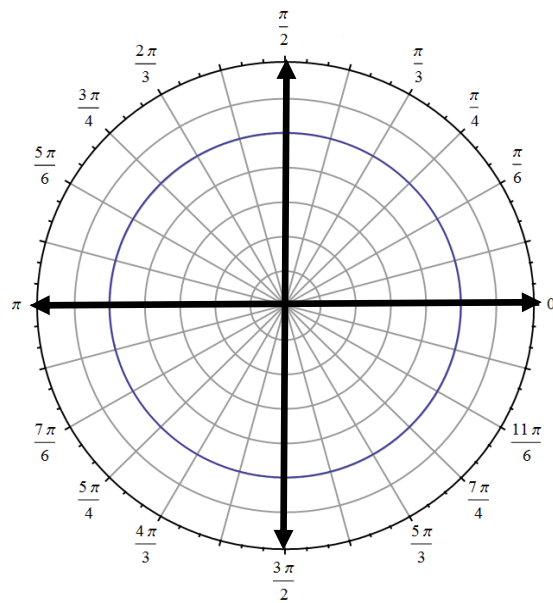
6) $(\frac{3}{2}, -\frac{\pi}{2})$



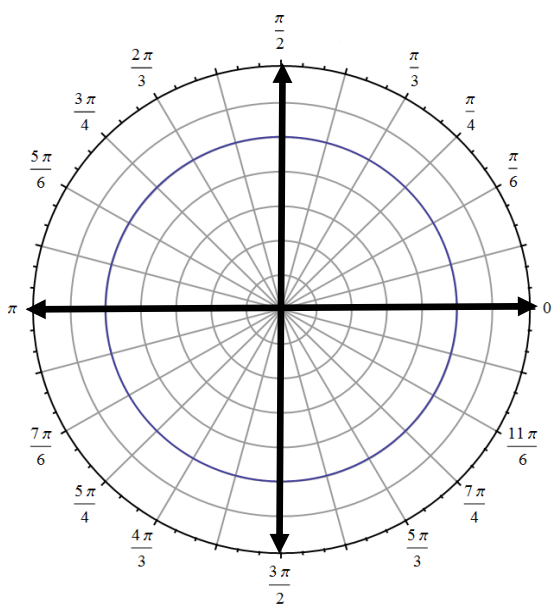
7) $(-1, -\frac{\pi}{4})$



8) $(2\sqrt{3}, \frac{7\pi}{6})$



9) $(-\frac{4}{3}, -\frac{2\pi}{3})$



10) $(5, \pi)$

