Polar Coordinate System

 Pole (or origin)- a fixed point O

 Polar Axis-an initial ray starting from O

 Polar Coordinates- (r, ϑ)

 r = directed distance from O to P

 ϑ = directed angle, measured counterclockwise from the polar axis to $\overline{OP}$

$P = (r, \theta)$

$r = directed\ distance$

O $\theta = directed\ angle$ Polar

Pole (Origin)   axis
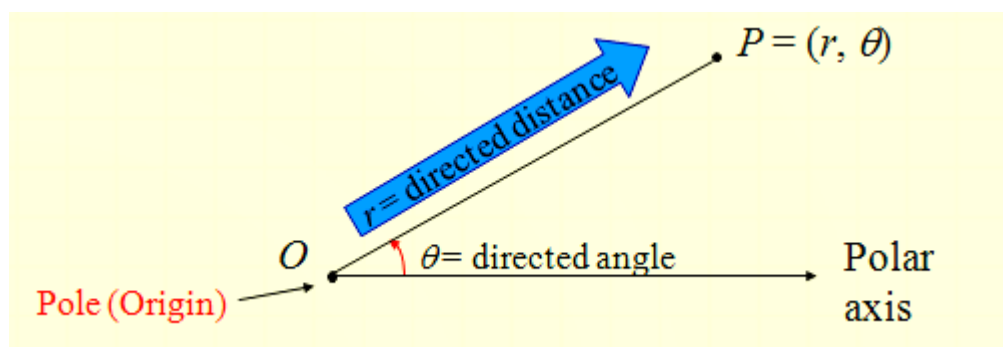
Example 1: Plot the points.

A) $(r, \theta) = (2, 60°)$

B) $(r, \theta) = (5, 150°)$

C) $(r, \theta) = \left(3, -\frac{\pi}{3}\right)$

D) $(r, \theta) = \left(4, \frac{7\pi}{6}\right)$
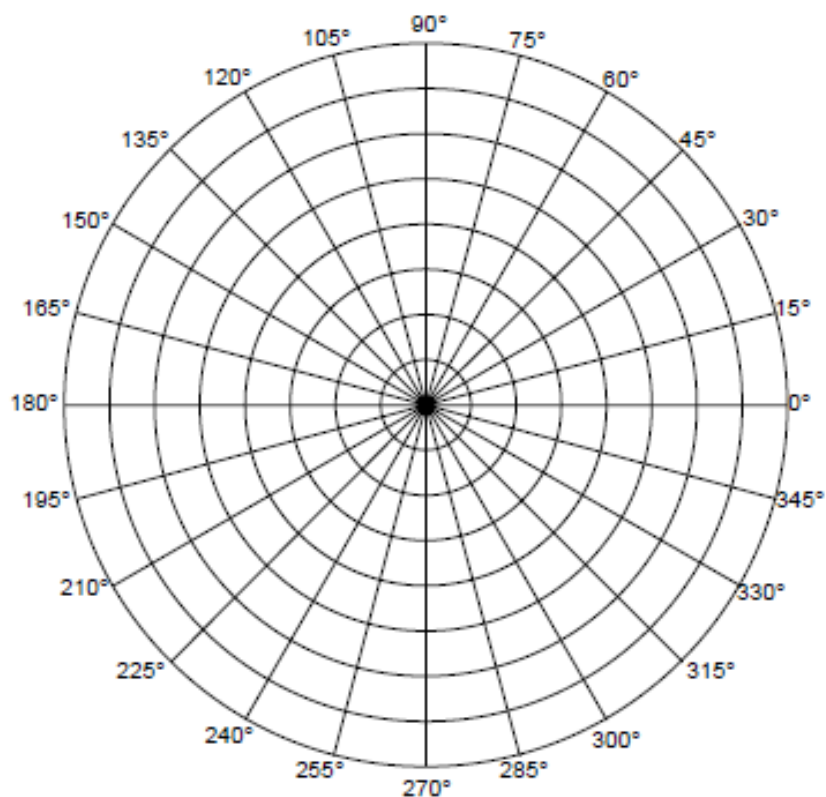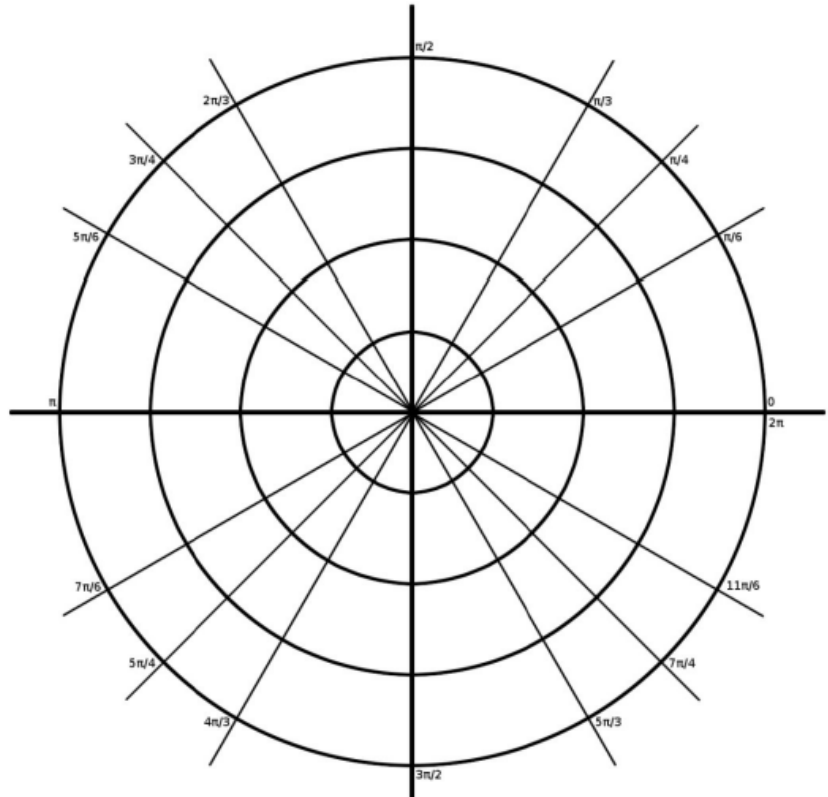
Example 2:

Plot the point and find three additional polar representations of the point, using $-2\pi < \theta < 2\pi$.

A) $\left(3, \dfrac{\pi}{4}\right)$

B) $\left(4, \dfrac{-7\pi}{6}\right)$

Homework: Page 781 #1-13 all