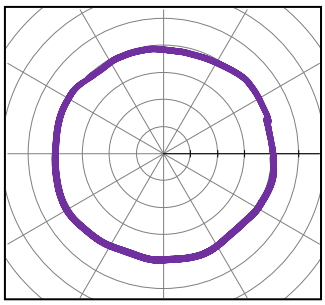
Pre-Calculus
HW day 1 – Circles and Cardioids

Name _____

Determine the equation and then draw a graph.

1) Circle with radius 4; center at origin:

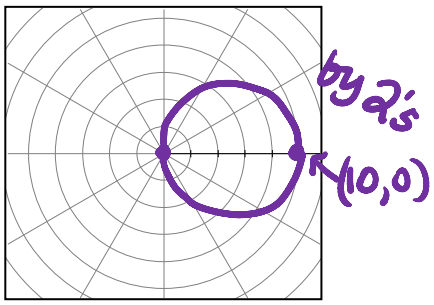
$r = 4$



2) Circle with radius 5; one endpoint of diameter lies on origin; lying on the positive x-axis:

d=10

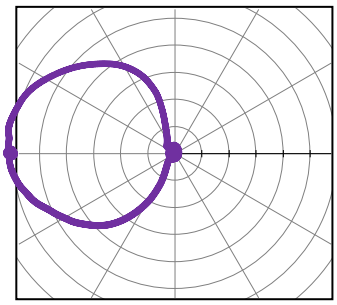
$r = 10\cos\theta$



3) Circle with radius 3; one endpoint of diameter lies on origin; lying on the negative x-axis:

d=6

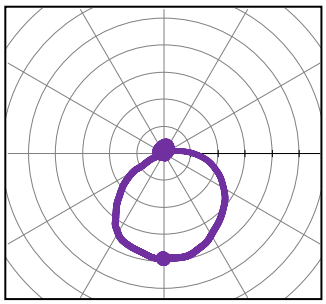
$r = -6\cos\theta$



4) Circle with radius 2; one endpoint of diameter lies on origin; lying on the negative y-axis:

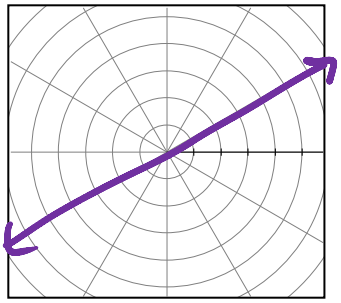
d=4

$r = -4\sin\theta$



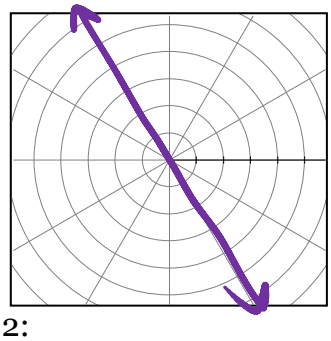
5) Line with positive slope (passes through 1st and 3rd quadrant):

$\theta = \frac{\pi}{6}$



6) Line with negative slope (passes through 2nd and 4th quadrant):

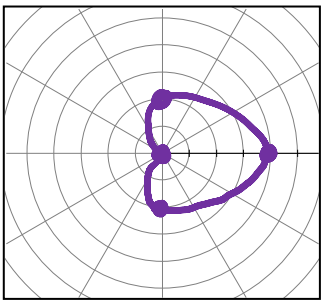
$\theta = \frac{2\pi}{3}$



7) Cardioid with x-intercepts (4, 0°) and (0, 180°); y-intercepts +/- 2:

$r = 2 + 2\cos\theta$

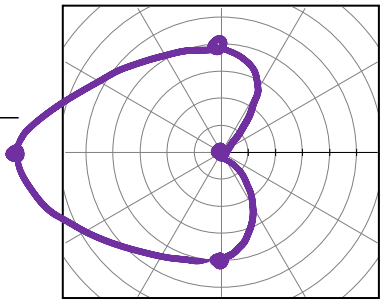
Give the y-intercepts in polar form: $(2, \frac{\pi}{2})\ (2, \frac{3\pi}{2})$



8) Cardioid with x-intercepts (0,0°) and (8, 180°); y-intercepts +/- 4:

$r = 4 - 4\cos\theta$

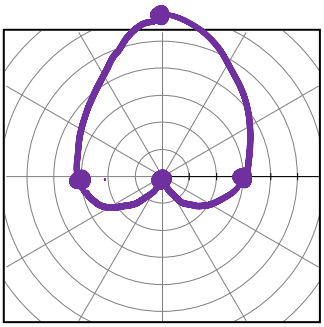
Give the y-intercepts in polar form: $(4, \frac{\pi}{2})\ (4, \frac{3\pi}{2})$



9) Cardioid with y-intercepts (6, 90°) and (0, 270°); x-intercepts +/- 3:

$r = 3 + 3\sin\theta$

Give the x-intercepts in polar form: $(3, 0)\ (3, \pi)$



10) Cardioid with y-intercepts (0, 90°) and (4, 270°); x-intercepts +/- 2:

$r = 2 - 2\sin\theta$

Give the x-intercepts in polar form: $(2, 0)\ (2, \pi)$