

No Calculator except where noted "Calc."

1) Plot the points on the polar grid. Label all points.

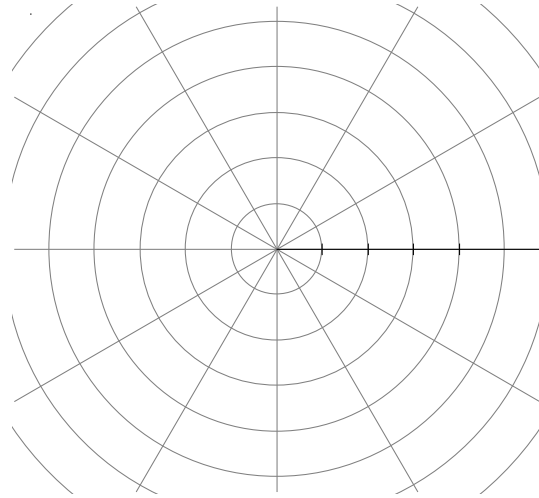
A) $(4, 30^\circ)$

B) $(3, -60^\circ)$

C) $(-2, \frac{5\pi}{3})$

D) $(-5, \frac{3\pi}{2})$

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



For questions 2 – 4, change the following from rectangular to polar coordinates. Give two answers. One with a positive r value and one with a negative r value.

2) $(5, 5)$

3) $(-8, 6)$ (Calc)

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

For questions 5 – 7, change the following from polar to rectangular coordinates.

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

6) $(-2, 140^\circ)$ (Calc)

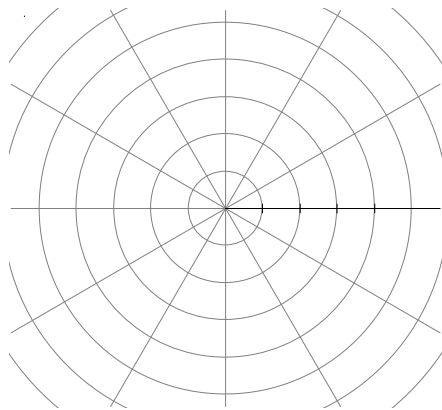
7) $(4, -120^\circ)$

For questions 8 – 13, identify each of the following as a line, circle, cardioid, or limaçon. Then, state the important parts such as axis of symmetry, x and y intercepts, diameter of circle, any other important information. Then graph each equation.

DO NOT USE A CALCULATOR!!

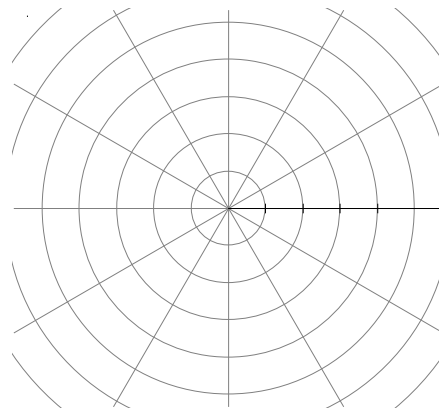
8) $r = 5$

Important Characteristics:



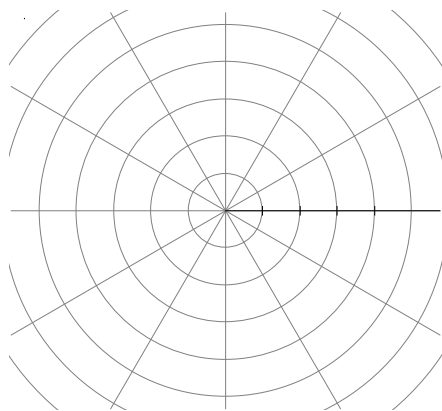
9) $\theta = \frac{5\pi}{6}$

Important Characteristics



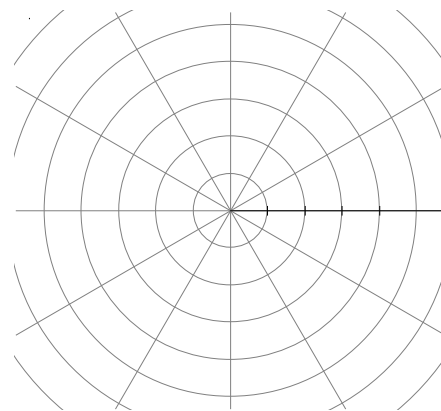
10) $r(\theta) = 3 + 3\sin\theta$

Important Characteristics:



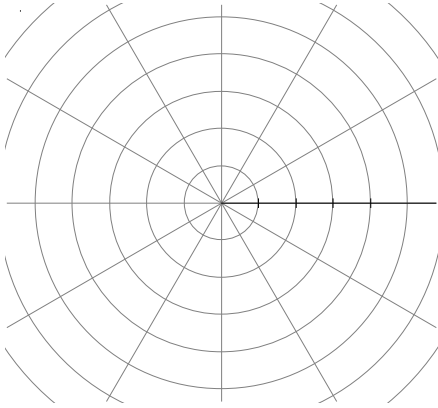
11) $r(\theta) = 2 - 2\cos\theta$

Important Characteristics:



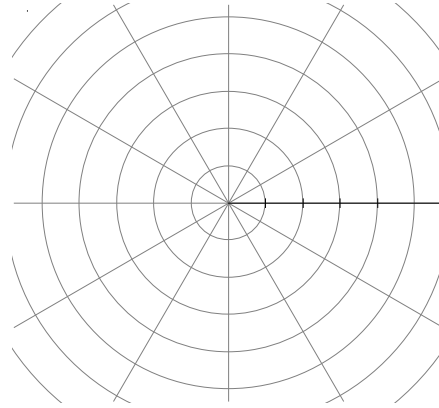
12) $r(\theta) = 3 + 2\cos\theta$

Important Characteristics:



13) $r(\theta) = 1 + 4\sin\theta$

Important Characteristics:



14) Write the equation of a limaçon with y-intercepts of 3 and -3, and x-intercepts of 7, 0, and 1.

15) Write the equation of a circle that lays on the x-axis with x-intercepts of 0 and 9.

16) Write the equation of a cardioid with x-intercepts of +/- 2 and 0, and y-intercepts of 0 and 4.