

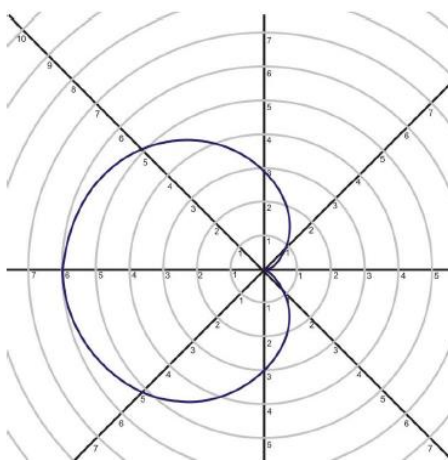
6.2 Graphing Basic Polar Equations

1. Answers:

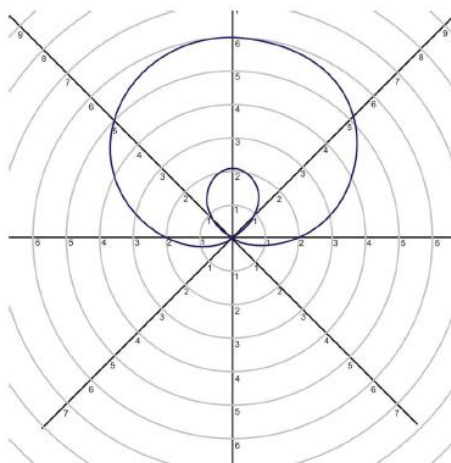
- a. a limaçon with an innerloop. $r = 2 - 3 \sin \theta$
- b. a cardioid $r = 2 + 2 \sin \theta$
- c. a dimpled limaçon $r = 5.5 + 4.5 \sin \theta$

2. Answers:

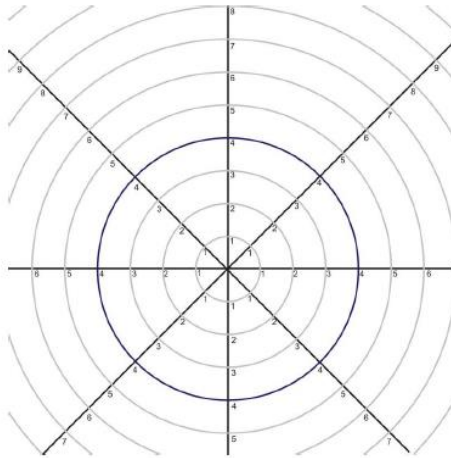
- a. $r = -3 - 3 \cos \theta$



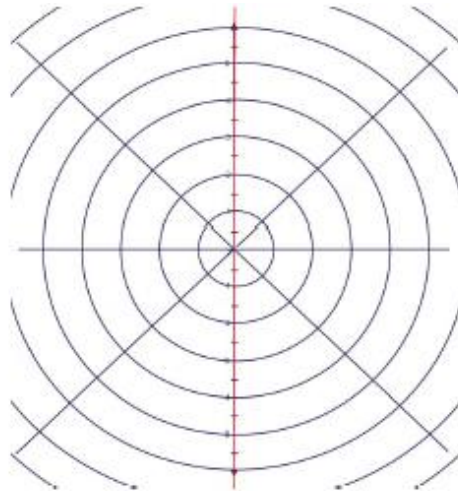
- b. $r = 2 + 4 \sin \theta$



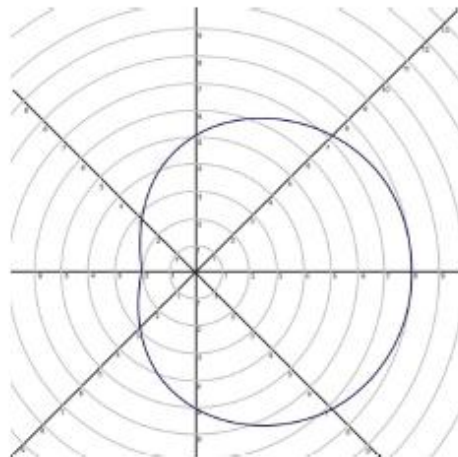
- c. $r = 4$



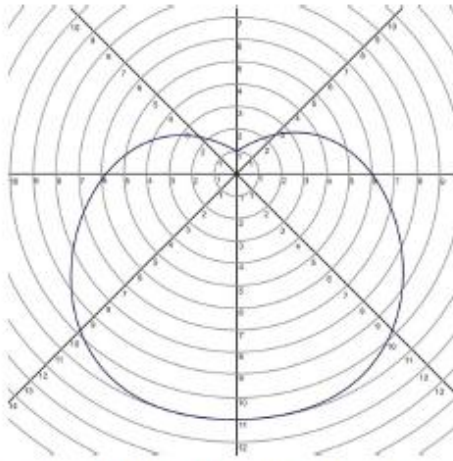
d. $\theta = \frac{\pi}{2}$



e. $r = 5 + 3\cos\theta$



f. $r = -6 - 5\sin\theta$



To determine the equation of these curves, first notice that cosine curves are along the horizontal axis and sine curves are along the vertical axis. Second, where the curve passes through the axis on the non-dimpled side is a in $r = a + b \sin \theta$. b is a little harder to see, but it is the average of the two intercepts where the curve crosses the axis on the dimpled axis. If there is an inner loop, use the innermost value of the loop.