# Math 199 CD3 Merit Worksheet 24: Plotting Parametric Equation and Polar Coordinate and More

April 27, 2022

1. Plotting $r = 1 + \cos\theta$

2. Plotting $r = 1 + 2\cos\theta$

3. Find the intersection point of the curve $r^2 = 4\cos(2\theta)$ and $r^2 = 4\sin(2\theta)$

4. Find the area enclosed by the cardioid $r = 1 + \cos\theta$

5. Find the area inside the limacon $r = 4 + 2\cos\theta$.

6. Change the equation $x^2 + y^2 = 16$ into polar coordinate

7. Find the largest value on the cardioid $r = 2(\cos\theta + 1$

8. Find the intersection of $r = \sqrt{2}\sin\theta$ and $r^2 = \cos 2\theta$

9. Find the area of the inner loop of the limacon $r = 1 + 2\cos 2\theta$

10. Find the area of the limacon $r = 4 + 2\cos\theta$