

MTH232

Polar Graphs

Project 5– Exercises

NAME: _____

SECTION: _____

INSTRUCTOR: _____

Exercise 1:

Use MATLAB to plot the graphs of each of the following. Then determine what interval for t is needed in order to trace the entire graph only once. (Use subplot(2,2,1) through subplot(2,2,3) to get the three graphs onto one window.)

a.) interval for t in order to trace $r = 4 \cos(2t)$ only once:

(1) Circle one:

1. $[0, \pi/3]$ 2. $[0, \pi/2]$ 3. $[0, 2\pi]$ 4. $[0, \pi]$

b.) interval for t in order to trace $r = \cos(5t)$ only once:

(2) Circle one:

1. $[0, \pi/3]$ 2. $[0, \pi/2]$ 3. $[0, 2\pi]$ 4. $[0, \pi]$

c.) interval for t in order to trace $r = \sin(t/2)$ only once:

(3) Circle one:

1. $[0, 4\pi]$ 2. $[0, 3\pi]$ 3. $[0, 2\pi]$ 4. $[0, \pi]$

d.) Submit a print-out of your graphs

(4) Attach your graph to the worksheet.

Exercise 2:

a.) Use MATLAB to plot $r = \sin(2t)$ and $\cos(2t)$ on the same graph.

(5) Attach your graph to the worksheet.

b.) $\sin(2t) =$

(6) Circle one:

1. $\cos(2t + \pi/2)$ 2. $\cos(2t - \pi/4)$ 3. $\cos(2t + \pi/4)$ 4. $\cos(2t - \pi/2)$

Exercise 3:

- a.) Use MATLAB to draw the graph of $r = 6 - 4 \sin(t)$. Submit the graph
(7) Attach your graph to the worksheet.
- b.) $r = 6 - 4 \sin(t)$ is a
(8) Circle one:
1. rose 2. limacon 3. circle 4. cardioid

Exercise 4:

- a.) Find the point of intersection for $r = 8 \cos^2(2t)$ and $r = 4$ where $0 < t < \pi/4$
(9) Circle one:
1. $\pi/8$ 2. $\pi/6$ 3. $\pi/10$ 4. $\pi/12$
- b. Find the area within 4 petals common to $r = 8 \cos^2 2t$ and $r = 4$.
(10) Circle one:
1. $20\pi + 32$ 2. 16π 3. $\pi/4$ 4. $20\pi - 32$