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. $\cos(2t - \pi/3)$ **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.** cardiod

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.** $20\pi - 32$