clc

clear

close all %closes all figure windows

format compact

disp('Problem: 4')

figure(1)

fplot('sqrt(abs(cos(3\*x)))+(sin(4\*x))^2', [-2,2])

disp('Problem 16')

t = linspace(0,20,1000);

th = pi\*(1-exp(-0.2\*t));

r = 20 + 30\*(1-exp(-0.1\*t));

figure(2)

polar(th,r)

disp('Problem 18')

t = linspace(0,8,1000);

x = .41\*t.^4 - 10.8\*t.^3 + 64\*t.^2 - 8.2\*t + 4.4;

v = 1.64\*t.^3 - 32.4\*t.^2 + 128\*t - 8.2;

a = 4.92\*t.^2 - 64.8\*t + 128;

figure(3)

hold on

subplot(3,1,1)

plot(t,x)

title('Particle Dynamics')

ylabel('Distance (ft)')

subplot(3,1,2)

plot(t,v)

ylabel('Velocity (ft/s)')

subplot(3,1,3)

plot(t,a)

ylabel('Acceleration (ft/s^2)')

xlabel('Time (s)')

hold off