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%===== Homework #1
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%
% script hw1.m
%
%
% Script to perform the work associated with Homework #1. There is
% enough to get the code running for the sample problem. It is up to
% you to generate the remaining code.
%
%===== Homework #1
=====

doPart = 'b'; % Set to 'a' or 'b' as desired.

switch doPart

case 'a'
    tspan = [0, 40];
    x0 = 1;
    [t, x] = ode45( @hw1a , tspan, x0);

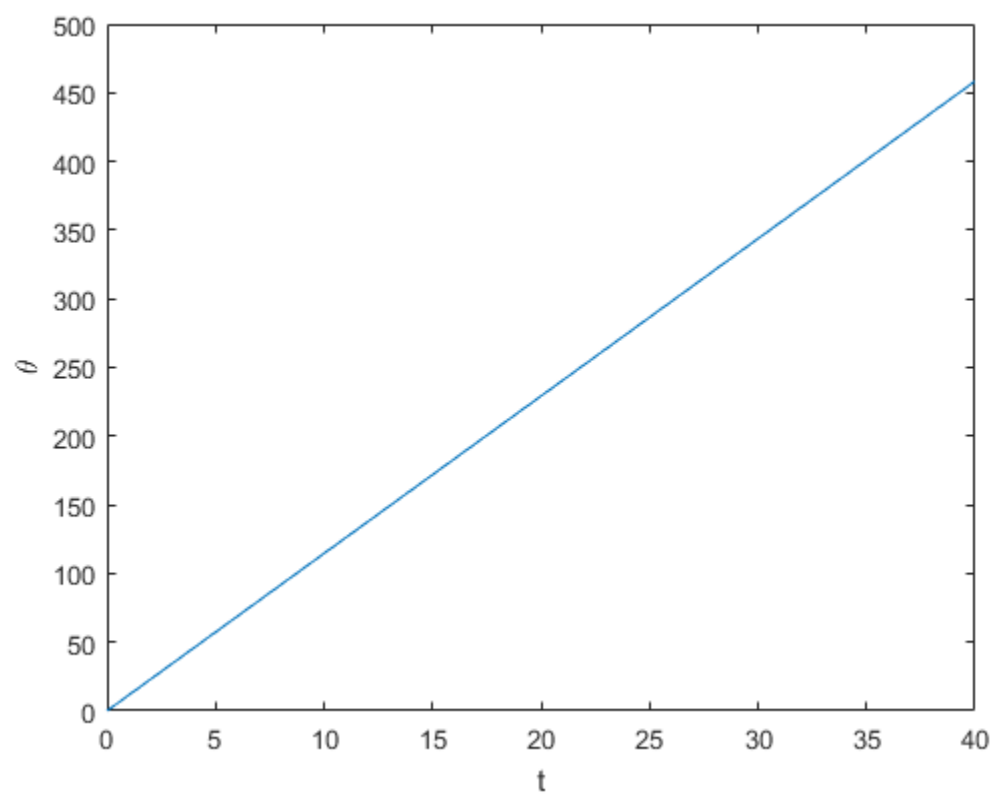
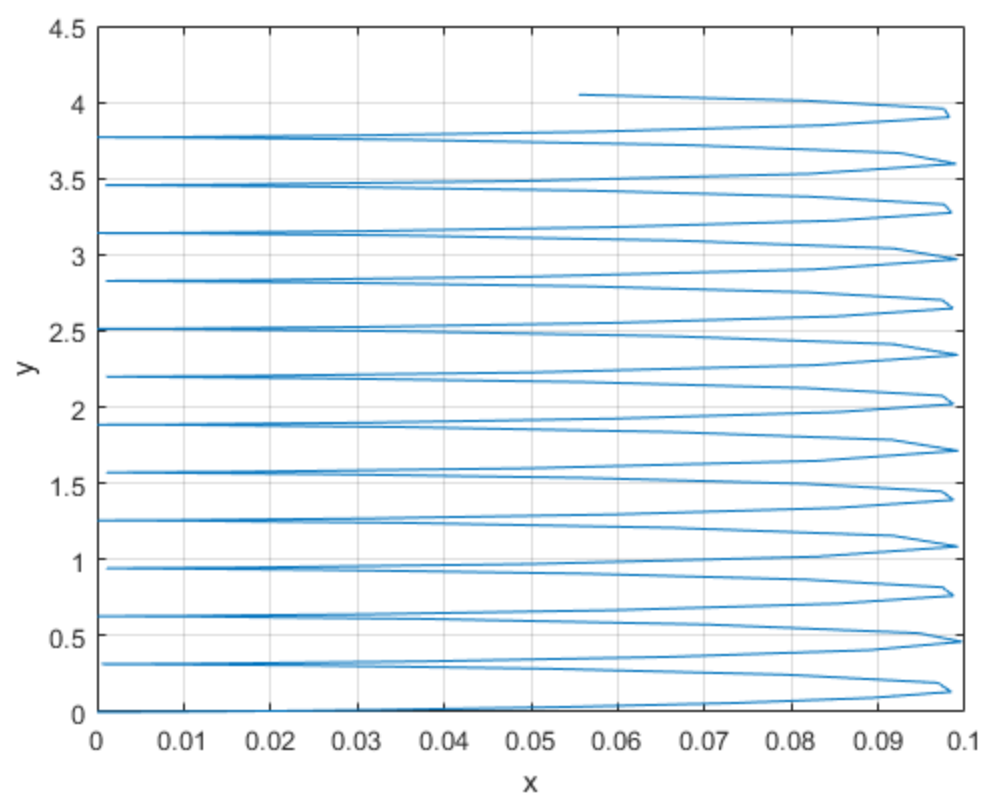
    figure(1);
    plot(t, x);
    xlabel('t');
    ylabel('x');
    grid on;

case 'b'
    tspan = [0, 40];
    x0 = zeros(3,1); % Should be a column vector.
    [t, x] = ode45( @hw1b, tspan, x0 );

    figure(1);
    plot(x(:,1), x(:,2));
    xlabel('x');
    ylabel('y');
    grid on;

    figure(2);
    plot(t, x(:,3) * 180/pi); % Factor is to convert to degrees from
radians.
    xlabel('t');
    ylabel('\theta');
end
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