```
clear;clc;close all;

tfinal = 10;
dt = 0.1;
t = 0:dt:tfinal;

th1_init = -90.0 * pi/180;
th2_init = 90 * pi/180;

x0 = [0 0 th1_init 0 th2_init 0];

options = odeset('RelTol', 1E-12, 'AbsTol', 1E-12, 'InitialStep',
 dt, 'MaxStep', dt);
[t,x] = ode45(@doublePendulumSS, t, x0,options);

close all;

% a = figure();
% sgtitle('P4 & IC4','FontSize',30)
% subplot(3,2,1)
% hold on
% grid minor
% plot(t,x(:,1))
% xlabel('Time [s]','FontSize',20)
% ylabel('Cart Position','FontSize',20)
% title('Cart Position vs. Time','FontSize',20)
%
% subplot(3,2,2)
% hold on
% grid minor
% plot(t,x(:,2))
% xlabel('Time [s]','FontSize',20)
% ylabel('Cart Velocity','FontSize',20)
% title('Cart Velocity vs. Time','FontSize',20)
%
% subplot(3,2,3)
% hold on
% grid minor
% plot(t,x(:,3).*180/pi)
% xlabel('Time [s]','FontSize',20)
% ylabel('Theta [deg]','FontSize',20)
% title('\theta_1 Angular Position vs. Time','FontSize',20)
%
% subplot(3,2,4)
% hold on
% grid minor
% plot(t,x(:,4).*180/pi)
% xlabel('Time [s]','FontSize',20)
% ylabel('Angular Velocity [deg/s]','FontSize',20)
% title('\theta_1 Angular Velocity vs. Time','FontSize',20)
%
% subplot(3,2,5)
```

```
% hold on
% grid minor
% plot(t,x(:,5).*180/pi,'r')
% xlabel('Time [s]','FontSize',20)
% ylabel('Theta [deg]','FontSize',20)
% title('\theta_2 Angular Position vs. Time','FontSize',20)
%
% subplot(3,2,6)
% hold on
% grid minor
% plot(t,x(:,6).*180/pi,'r')
% xlabel('Time [s]','FontSize',20)
% ylabel('Angular Velocity [deg/s]','FontSize',20)
% title('\theta_2 Angular Velocity vs. Time','FontSize',20)

a.Position = [100 100 1400 1000];
```

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