

COEN 45  
Spring Quarter, 2010  
Homework #4  
Due Tues Apr 27

Write separate scripts for the two problems. Submit your scripts along with printed copies of your plots. No diary file is necessary.

- Chapter 3, problem 16. Refer to problem 6 for equations governing the projectiles. In addition to calculating the distance between projectiles, make two plots
  - The two trajectories on the same figure, with both connecting lines and stars at each point. Example `plot(x,y,'-*');`.
  - In a new figure, plot the distance between projectiles versus time.
- Chapter 4, problem 12. In addition to finding the coefficients, plot the function and show that the given points actually lie on the curve. Suggestion:

```
clear; close all
%
% Chapter 4, problem 12, Joe Student
%
x = [-3 -1.5 0.5 2 5]';
y = [6.8 15.2 14.5 -21.2 10]';

%% set up coefficient matrix A and right-side vector B
%% to solve for a vector containing a,b,c,d,e

abcde = A\B; %% solve
a = abcde(1);
b = abcde(2);
c = abcde(3);
d = abcde(4);
e = abcde(5);
%
% Plot the function for -4 <= x <= 6
%
xx = -4:0.1:6;
yy = %% you now have a,b,c,d,e needed for this
plot(xx,yy);
hold on
%
% Over-plot the five given points
%
plot(x,y,'r*');
```

You should get a figure like this

