

CIEG 675 HW #3 solutions

```
%% CIEG 675 Homework 3 solutions %% (cut and paste into m-file to test [less  
figures])
```

```
%% Prob 1 %%
```

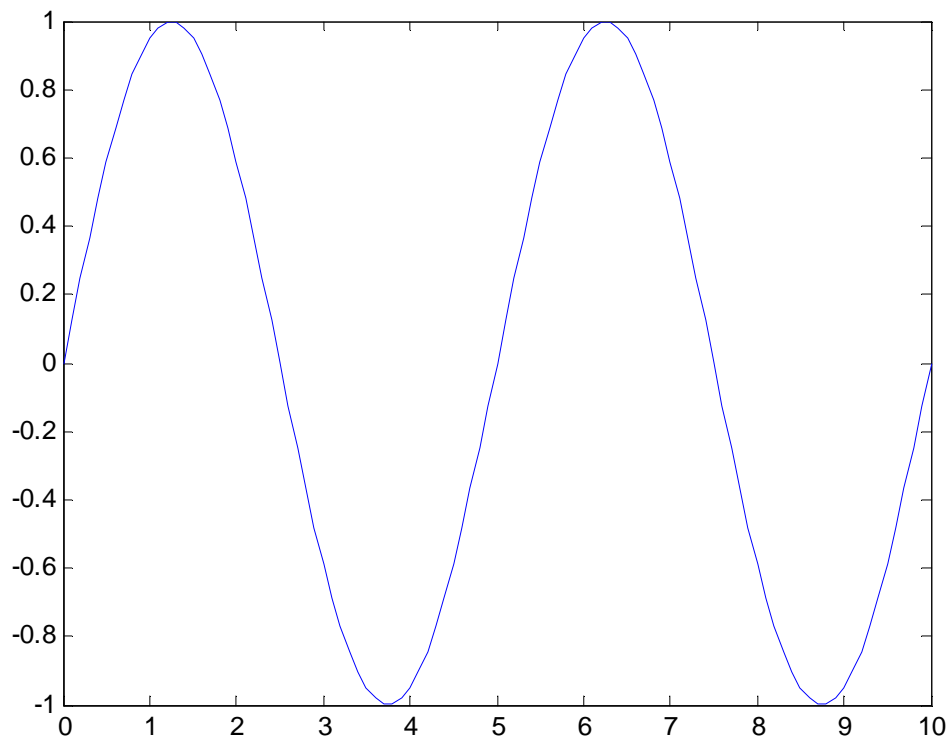
```
t=0:0.1:10;
```

```
prob1=sin(2*pi*t/5);
```

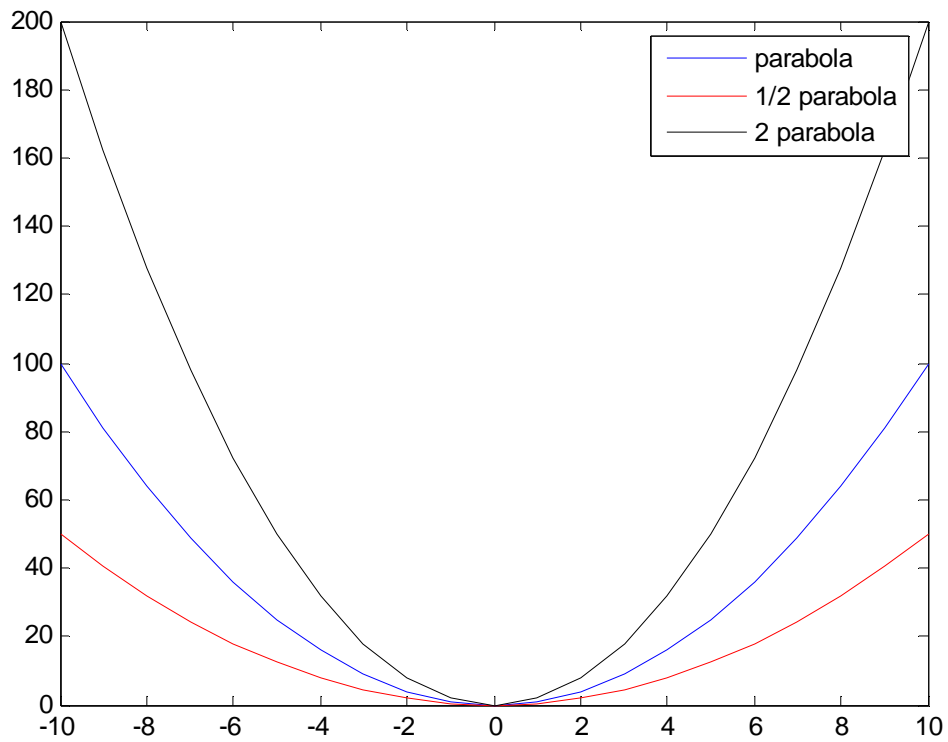
```
figure(1)
```

```
clf % start from blank slate
```

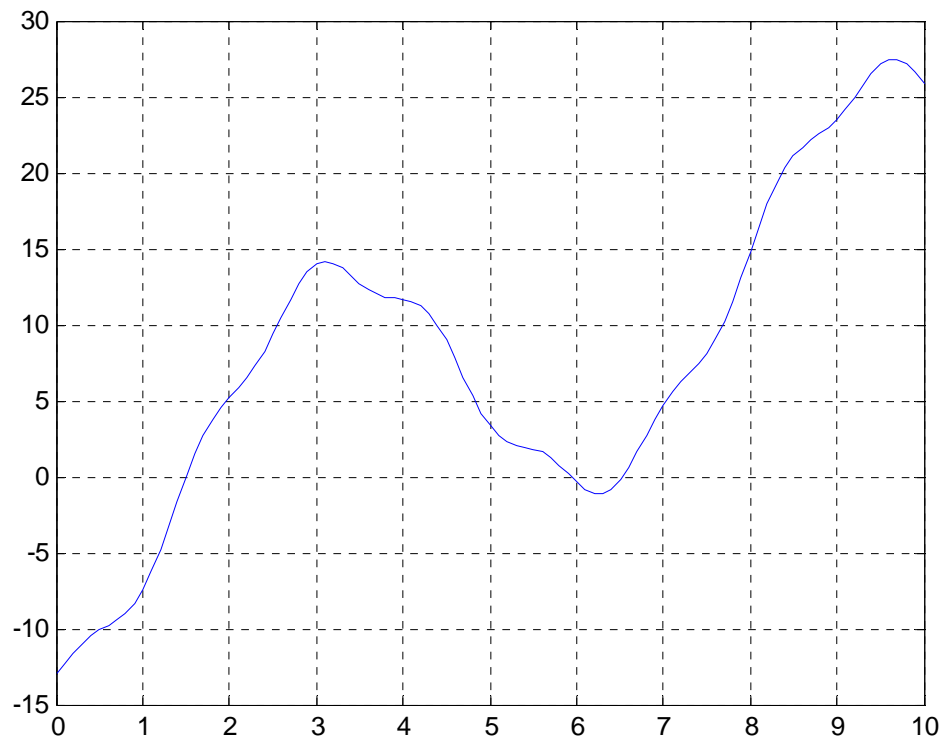
```
plot(t,prob1);
```



```
%% Prob2 %%  
figure(2)  
clf  
a=1;  
x=-10:10; % x vector  
y=a*x.^2; % parabola  
plot(x,y);  
hold on  
y5=0.5*a*x.^2; % half of a  
y2=2*a*x.^2; % twice a  
plot(x,y5,'r');  
plot(x,y2,'k');  
legend('parabola','1/2 parabola','2 parabola');
```



```
%% Prob 3 %%  
figure(3)  
x=0:0.1:10;  
y=2*x.^1.01 + sin(3*pi*x/2) - 10*cos(x) -3;  
plot(x,y)  
grid on  
% will have to use zoom icon on figure window and then ginput  
ginput(1) % use this twice after you have zoomed  
  
% I get 1.4993 and 5.9331
```



```
%% Prob 4 %%
```

```
Profile1x = 1:10;
```

```
Profile1z = [3 2.2 1.5 0.5 0.1 -0.4 -0.8 -1.4 -1.9 -2.2];
```

```
Profile2x = 1:10;
```

```
Profile2z = [2.9 2.3 1.5 0.4 0.1 -0.3 -0.6 -1.3 -1.9 -2.3]; % given profile data
```

```
figure(4)
```

```
clf
```

```
plot(Profile1x,Profile1z,'k','linewidth',2)
```

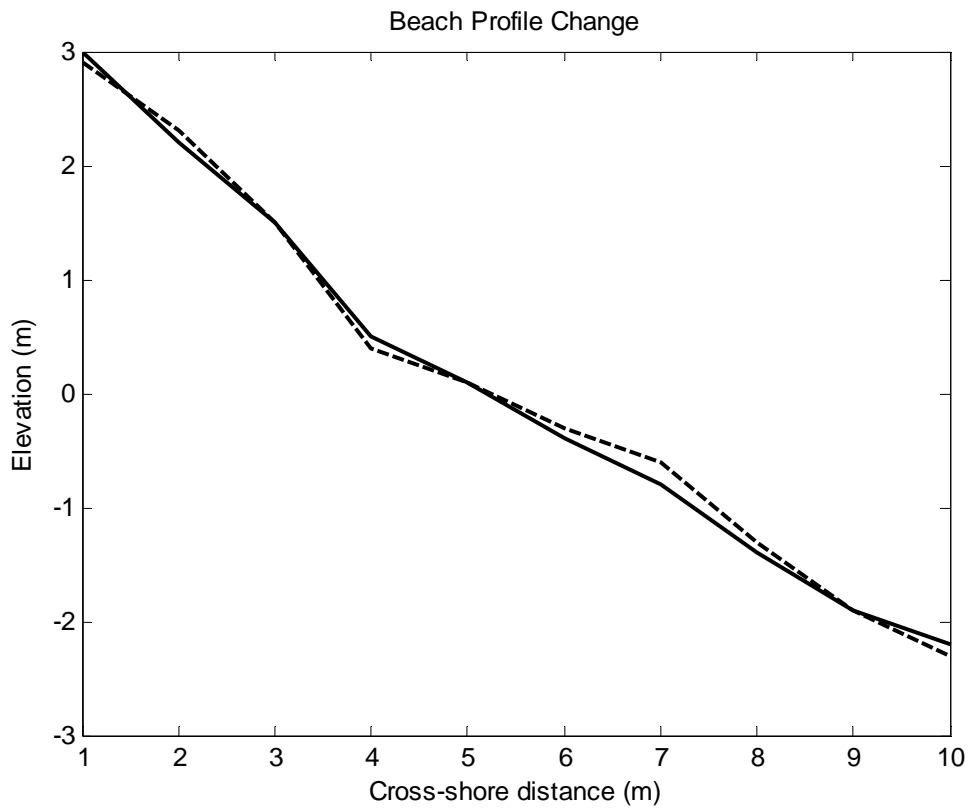
```
hold on
```

```
plot(Profile2x,Profile2z,'k--','linewidth',2)
```

```
xlabel('Cross-shore distance (m)');
```

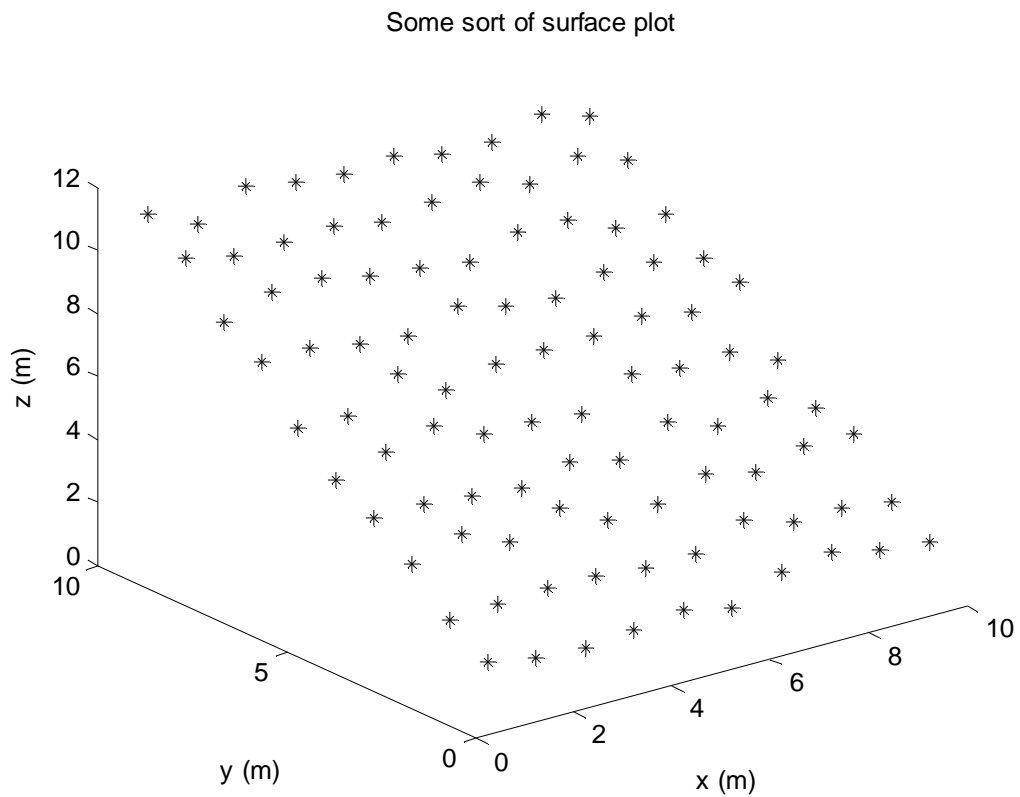
```
ylabel('Elevation (m)');
```

```
title('Beach Profile Change')
```



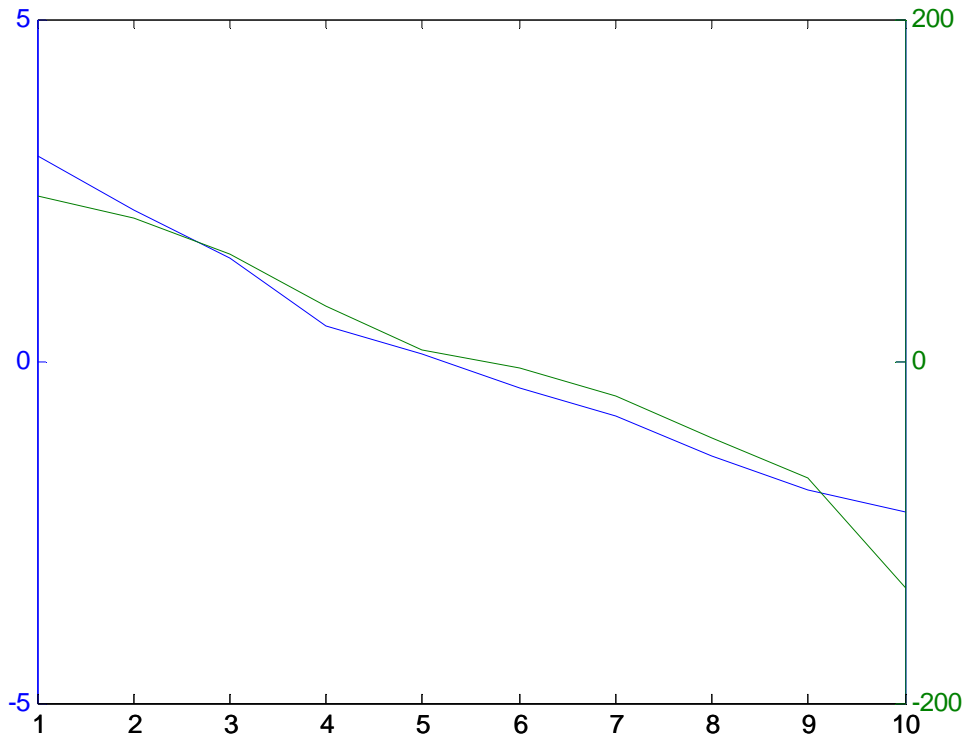
```
%% Prob 5 %%  
x = 1:10;  
y = x;  
[X,Y]=meshgrid(x,y); % makes a mesh of the x and y data  
Z = cumsum(ones(size(X)) + (1-rand(size(X)))); % a surface of data
```

```
figure(5)  
clf  
plot3(X,Y,Z,'k*');  
xlabel('x (m)');  
ylabel('y (m)');  
zlabel('z (m)');  
title('Some sort of surface plot');
```



```
%% Prob 6 %%  
x = 1:10;  
z1 = [3 2.2 1.5 0.5 0.1 -0.4 -0.8 -1.4 -1.9 -2.2];  
z2 = [97 84 63 32 7 -4 -21 -45 -68 -133]; % given data
```

```
figure(6)  
clf  
plotyy(x,z1,x,z2)
```



```

%% Prob 7 %%
Profile1x = 1:10;
Profile1z = [3 2.2 1.5 0.5 0.1 -0.4 -0.8 -1.4 -1.9 -2.2];
Profile2x = 1:10;
Profile2z = [2.9 2.3 1.5 0.4 0.1 -0.3 -0.6 -1.3 -1.9 -2.3];
% profile data, should already be in the workspace but we can redefine if
% we wish

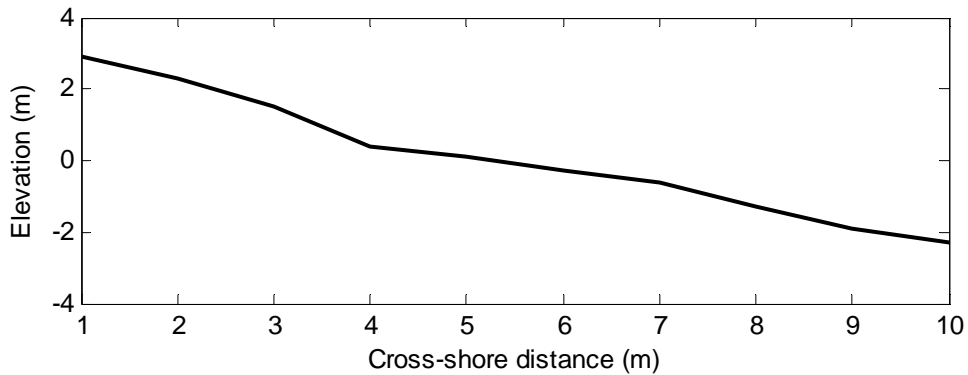
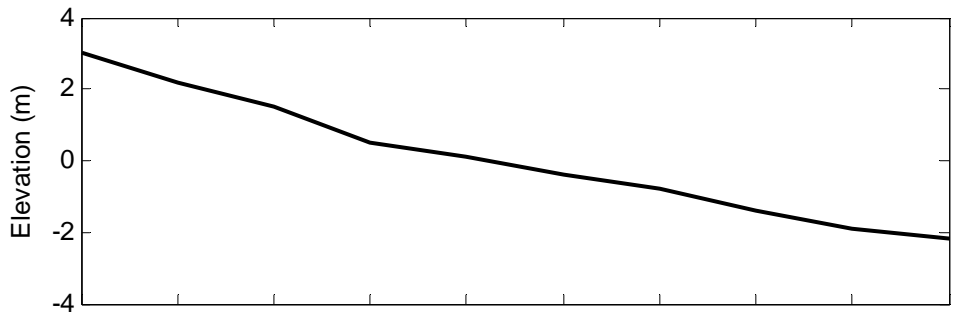
```

```

figure(7)
clf
subplot(211) % 1st subplot
plot(Profile1x,Profile1z,'k','linewidth',2)
set(gca,'XTickLabel',[]); % turn off x-axis tick labels
ylabel('Elevation (m)')

subplot(212) % 2nd subplot
plot(Profile2x,Profile2z,'k','linewidth',2)
xlabel('Cross-shore distance (m)');
ylabel('Elevation (m)')

```



```
%% Prob 8 %%  
x=1:5000;  
y=log(x);
```

```
figure(8)
```

```
clf
```

```
subplot(211) % 1st subplot
```

```
semilogy(x,y);
```

```
xlabel('x')
```

```
ylabel('y')
```

```
subplot(212) % 2nd subplot
```

```
loglog(x,y);
```

```
xlabel('x')
```

```
ylabel('y')
```

