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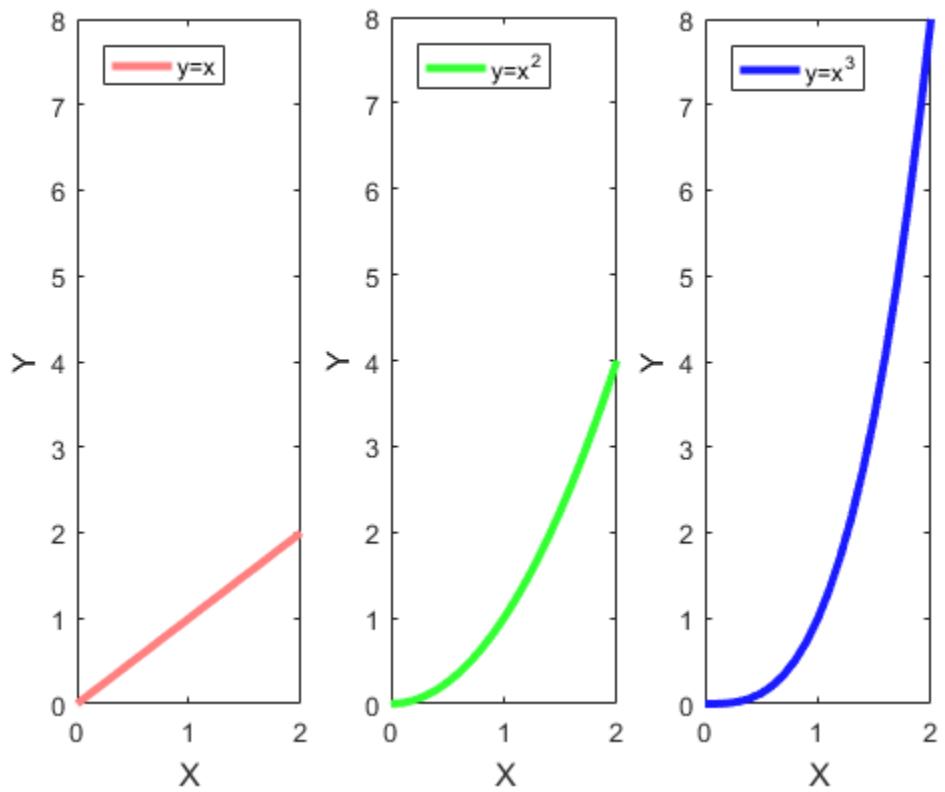
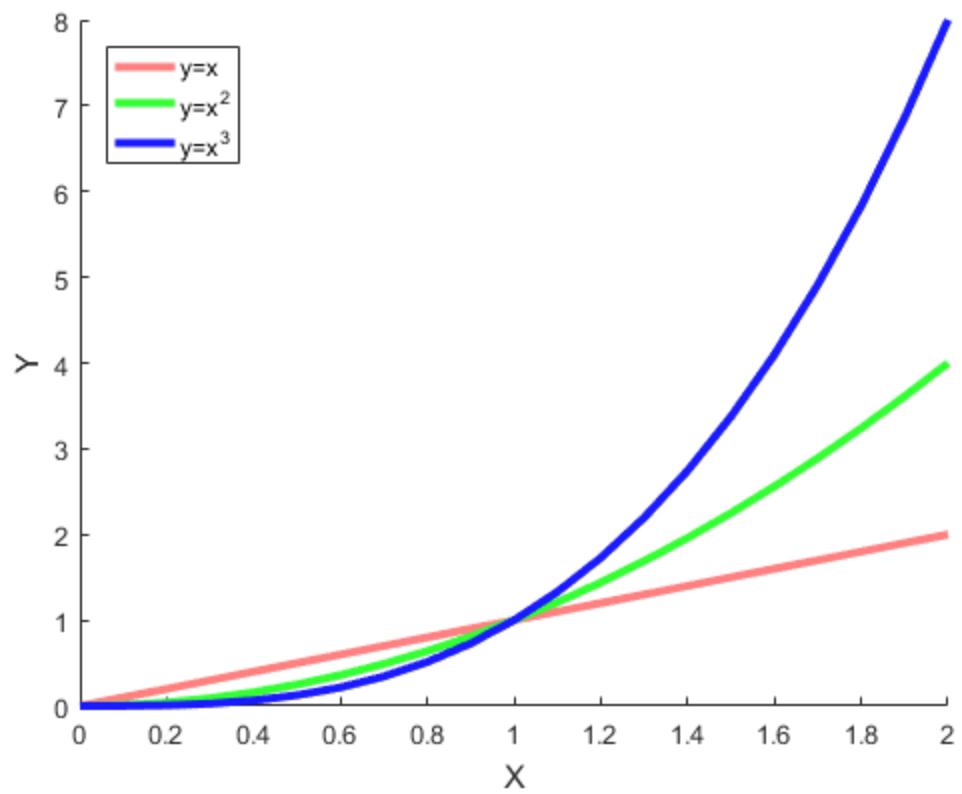
540.305 Problem Set 3: Plotting

```
clear
clc
```

Problem 1

```
% a
x = (0:0.1:2);
y = [x;x.^2;x.^3]';
colors =[1 0.5 0.5; 0.2 1 0.2;0.1,0.1,1];
legends = {'y=x', 'y=x^2', 'y=x^3'};
set(gca, 'ColorOrder', colors, 'NextPlot', 'replacechildren');
plot(x,y,'LineWidth',3)
xlabel('X', 'FontSize',12)
ylabel('Y', 'FontSize',12)
legend(legends,'Location', 'northwest')

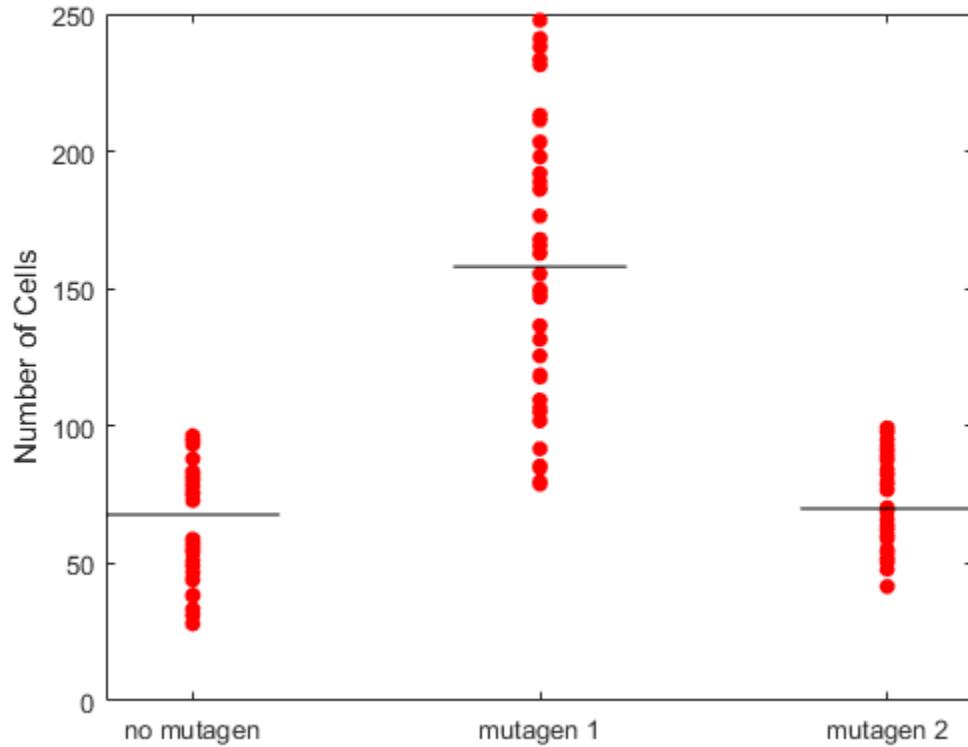
%b
figure
for i = 1:3
    subplot(1,3,i)
    plot(x,y(:,i), 'Color',colors(i,:),'LineWidth',3)
    xlabel('X', 'FontSize',12)
    ylabel('Y', 'FontSize',12)
    legend(legends(i),'Location', 'northwest')
    axis([0 2 0 8])
end
```

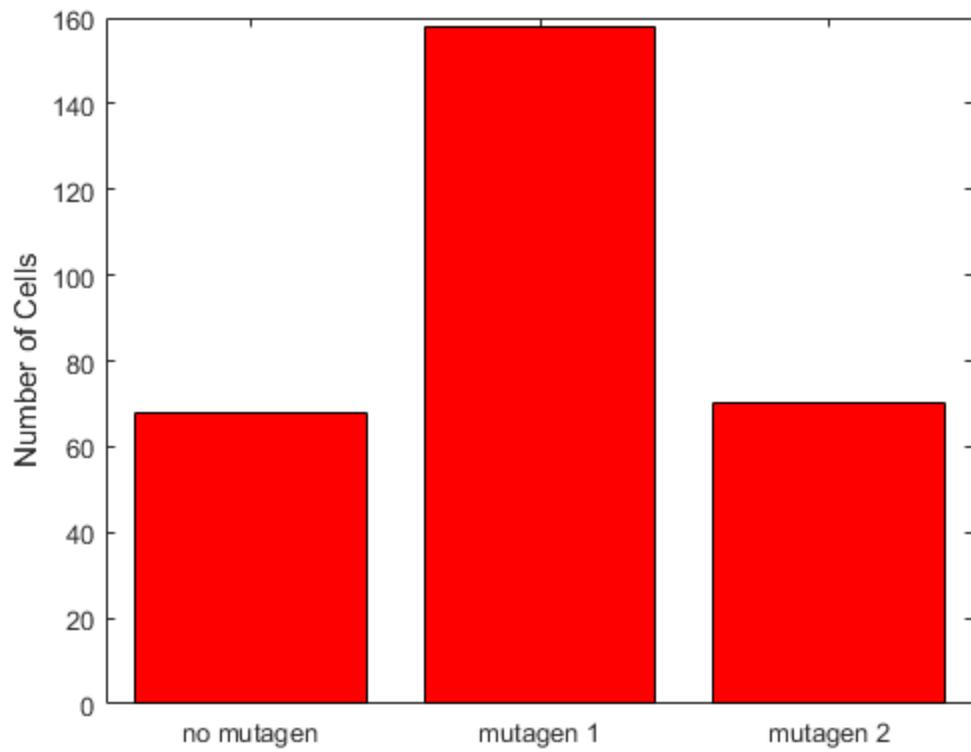


Problem 2

```
% a
v = xlsread('cell_mutagen_data.xlsx', 'B3:D38');
figure
plot([2 4 6], v, '.r', 'MarkerSize', 20) % used plot with '.' instead of
% scatter to express x and y as matrices
xt={'no mutagen', 'mutagen 1', 'mutagen 2'} ;
set(gca,'xtick',[2 4 6]);
set(gca,'xticklabel',xt);
hold on
plot([1.5 2.5; 3.5 4.5; 5.5 6.5]', repmat(mean(v), 2, 1), 'black')
ylabel('Number of Cells')
hold off

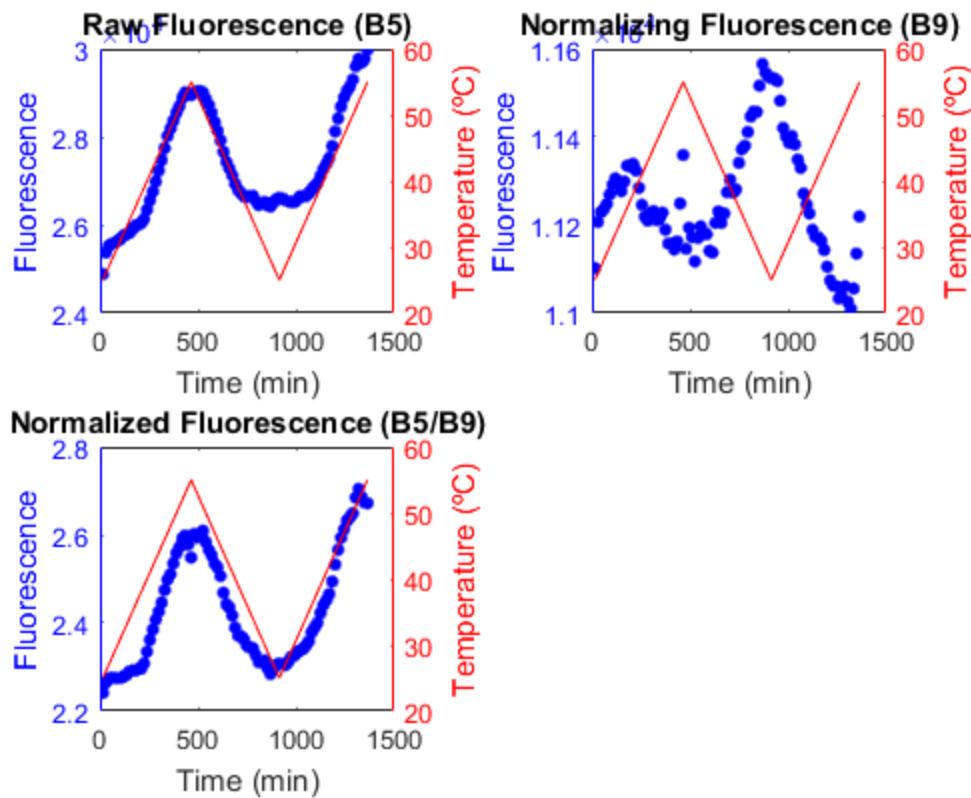
% b
figure
bar(mean(v), 'r')
set(gca,'xtick',[1 2 3]);
set(gca,'xticklabel',xt);
ylabel('Number of Cells')
```





Problem 3

```
file = 'Modstats_raw_fluorescence_data.xlsx';
fluo =
[xlsread(file,'B3:C93'),xlsread(file,'G3:G93'),xlsread(file,'I3:I93')];
x = [fluo(:,3),fluo(:,4),fluo(:,3)./fluo(:,4)];
f = figure;
set(f,'defaultAxesColorOrder',[0 0 1; 1 0 0]);
tit = {'Raw Fluorescence (B5)', 'Normalizing Fluorescence
(B9)', 'Normalized Fluorescence (B5/B9)'};
for i = 1:3
    subplot(2,2,i)
    yyaxis left
    plot(fluo(:,1),x(:,i),'b.', 'MarkerSize',15)
    ylabel('Fluorescence')
    yyaxis right
    plot(fluo(:,1),fluo(:,2),'r')
    ylabel('Temperature (°C)')
    xlabel('Time (min)')
    title(tit(i))
end
```



Problem 4

```
% a
load('XYZt.mat')
figure
plot(squeeze(C(8,8,8,:)))
xlabel('Time')
ylabel('Temperature')
% b
figure
subplot(1,3,1)
surf(squeeze(C(8,:,:,:end)))
view(150,29)
subplot(1,3,2)
surf(squeeze(C(:,8,:,:end)))
view(150,29)
colorbar('nouthoutside')
subplot(1,3,3)
surf(squeeze(C(:,:,8,end)))
view(150,29)
% c
figure
C = permute(C,[2 1 3 4]);
t=[1 251 501 1001];
for i = 1:4
```

```
    subplot(1,4,i)
    slice(C(:,:,:,:,t(i)),[1 5 10 15], 1,1)
    colorbar('nouthoutsid')
    view(150,29)
end
```

