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```
clear all
close all
clc

% SEAS 1001 - Matlab Assignment 2A
% RICK SEAR
```

Problem 1

```
C = [1 9 -37 -357 -26 1620];
roots(C)


ans =

   -8.9770
    5.9899
   -5.0794
   -2.9464
    2.0130
```

Problem 2

```
A = [1 2 0;2 5 -1;4 10 -1];
B = [20;46;95];

A^-1*B

B = [13;24;53];

A^-1*B


ans =

     2
     9
     3


ans =
```

```
7
3
5
```

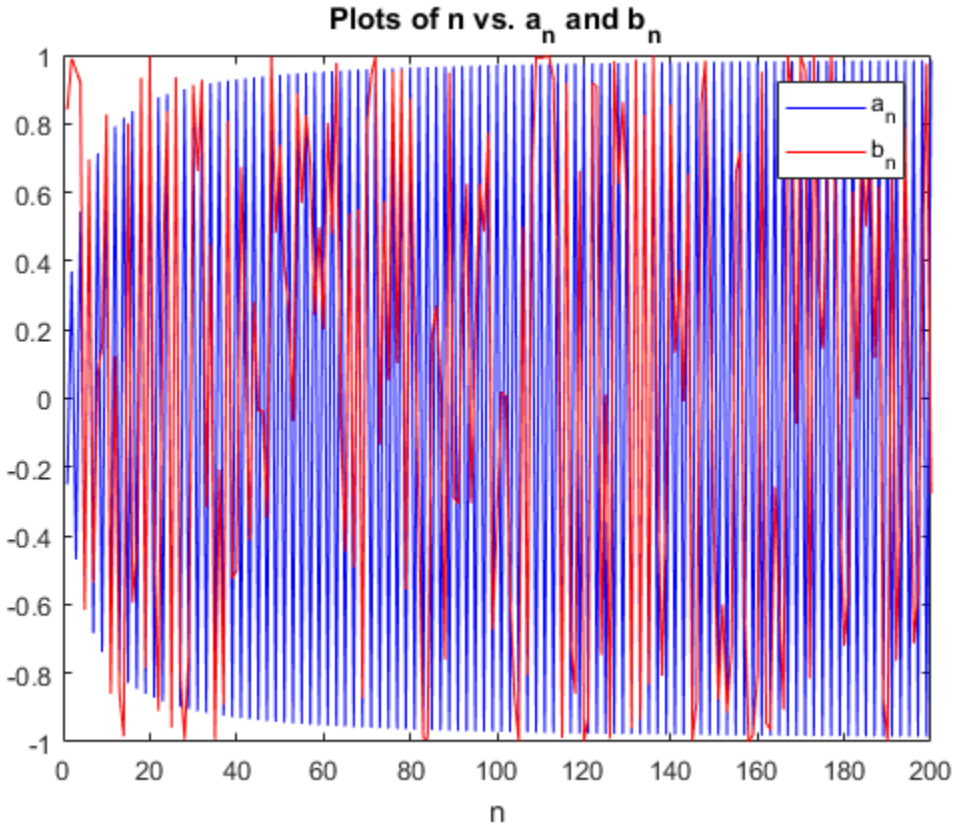
Problem 3

```
sin(cos(exp(log(25))))+100*((55/7)-1000*tan(0.23))
```

```
ans =

  -2.2628e+04
```

Problem 4

```
n=1:1:200;

a=(-1).^n.*(n.^3+n)./(n+1).^3;
b=sin(n.^3);

plot(n,a,'b',n,b,'r')
xlabel('n')
title('Plots of n vs. a_n and b_n')
legend('a_n','b_n')
```



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```
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% SEAS 1001 - Matlab Assignment 2b
% RICK SEAR
```
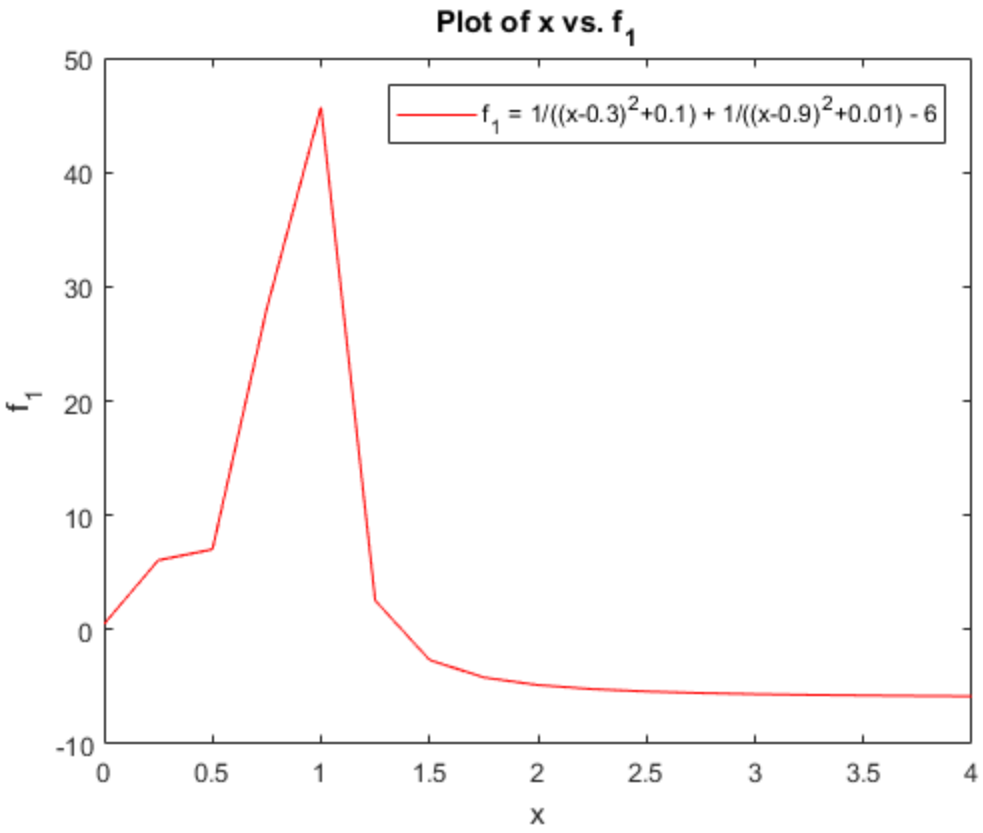

Problem 1

```
x=0:0.25:4;

f1=((x-0.3).^2+0.1).^-1 + ((x-0.9).^2+0.01).^-1 - 6;

max(f1)
min(f1)

plot(x,f1,'r')
xlabel('x')
ylabel('f_1')
title('Plot of x vs. f_1')
legend('f_1 = 1/((x-0.3)^2+0.1) + 1/((x-0.9)^2+0.01) - 6')
```

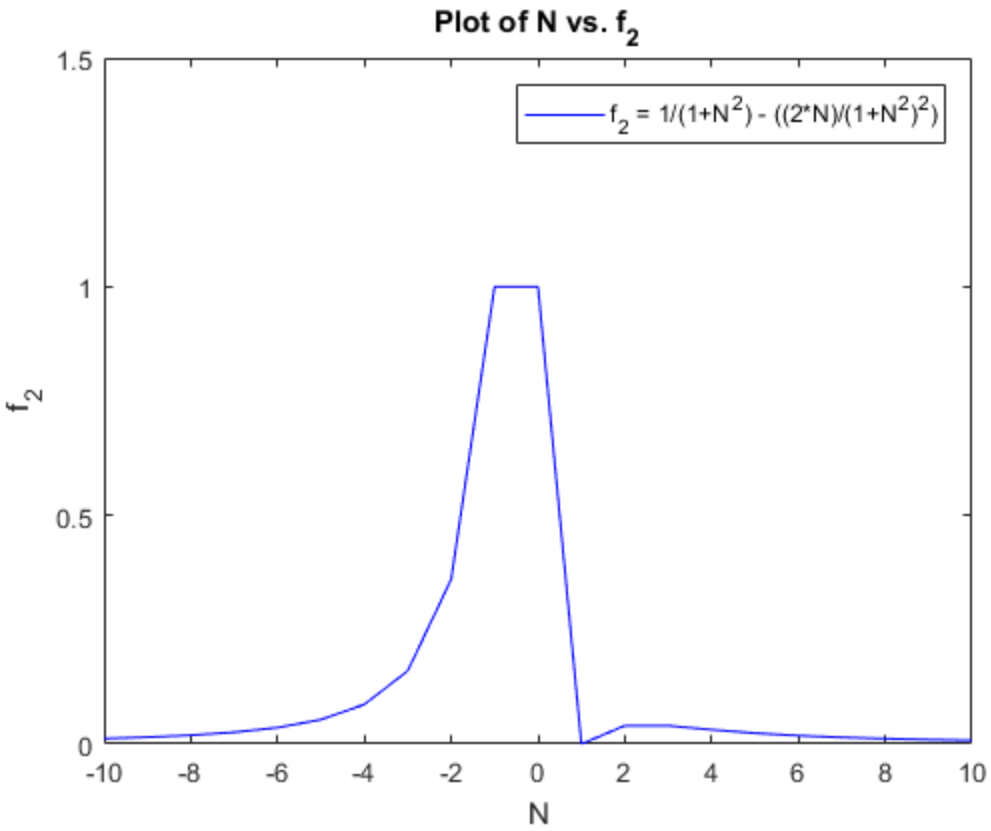
```
ans =

   45.6949


ans =

   -5.8235
```



Problem 2

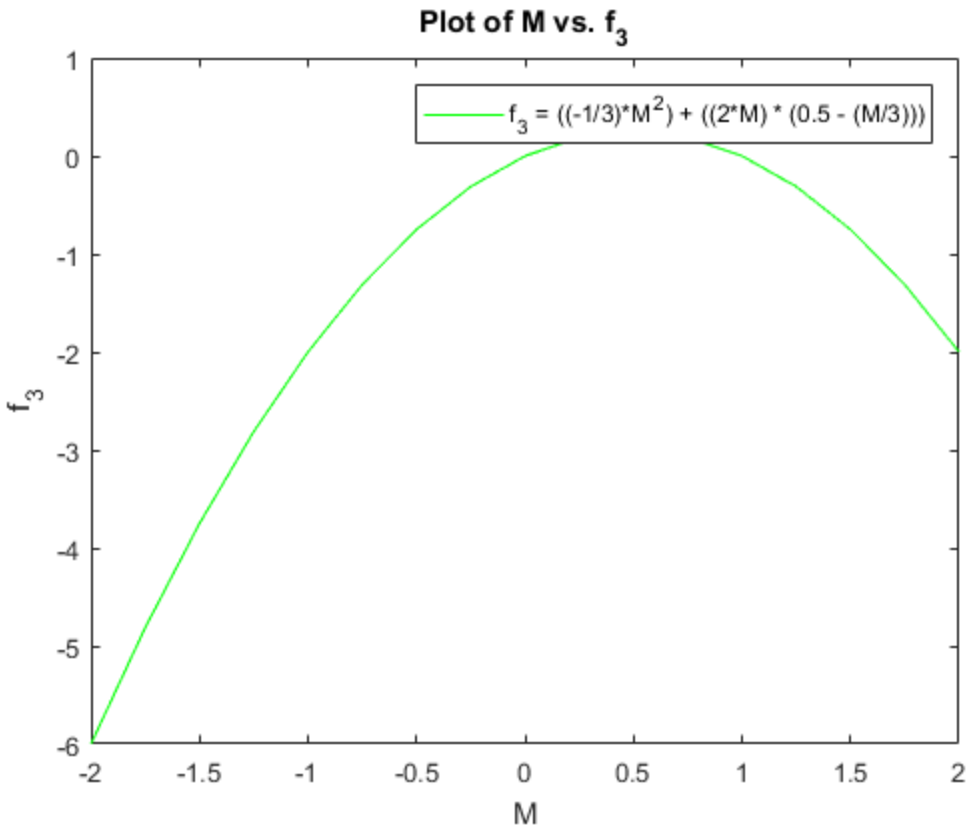
```
N=-10:1:10;

f2=(1+N.^2).^-1 - ((2.*N)./(1+N.^2).^2);

max(f2)
min(f2)

plot(N,f2,'b')
axis([-10 10 0 1.5])
xlabel('N')
ylabel('f_2')
title('Plot of N vs. f_2')
legend('f_2 = 1/(1+N^2) - ((2*N)/(1+N^2)^2)')
```

```
ans =

     1


ans =

     0
```



Problem 3

```
M=-2:0.25:2;

f3=((-1/3).*M.^2) + ((2.*M) .* (0.5 - (M./3)));

max(f3)
min(f3)

plot(M,f3,'g')
xlabel('M')
ylabel('f_3')
title('Plot of M vs. f_3')
legend('f_3 = ((-1/3)*M^2) + ((2*M) * (0.5 - (M/3)))')


ans =

    0.2500


ans =

   -6.0000
```



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