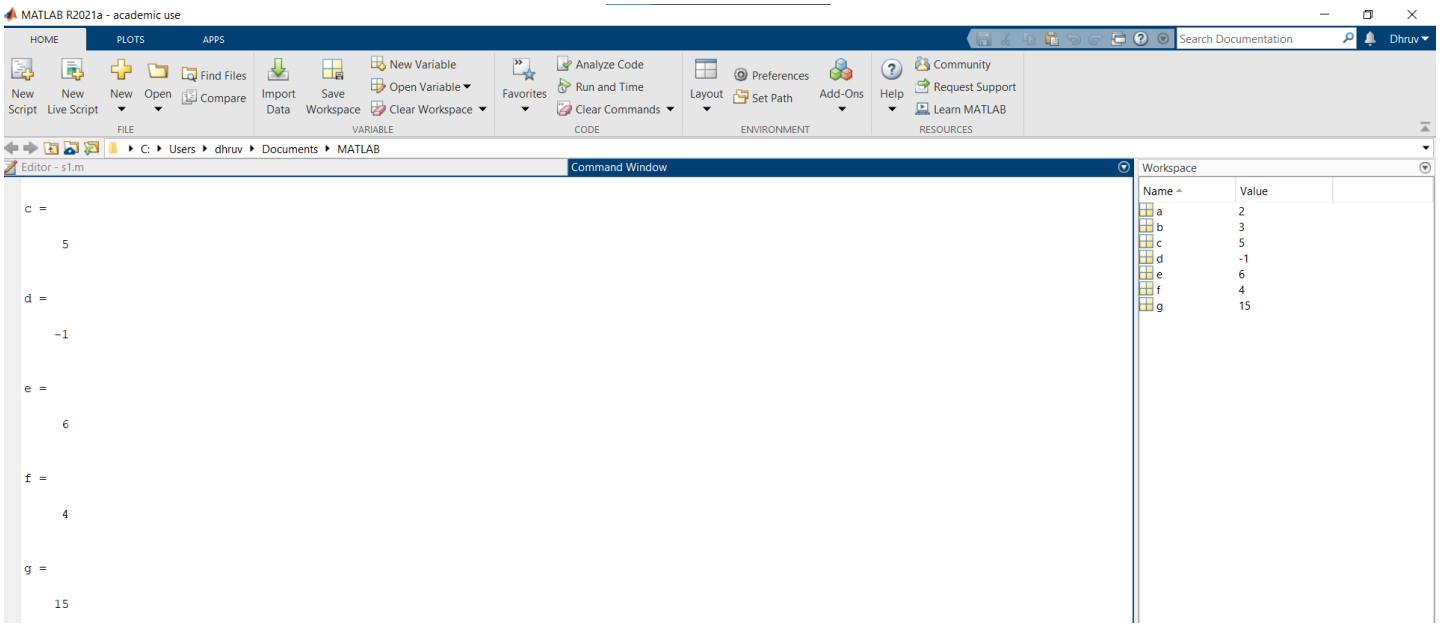
FIRST WEEK:

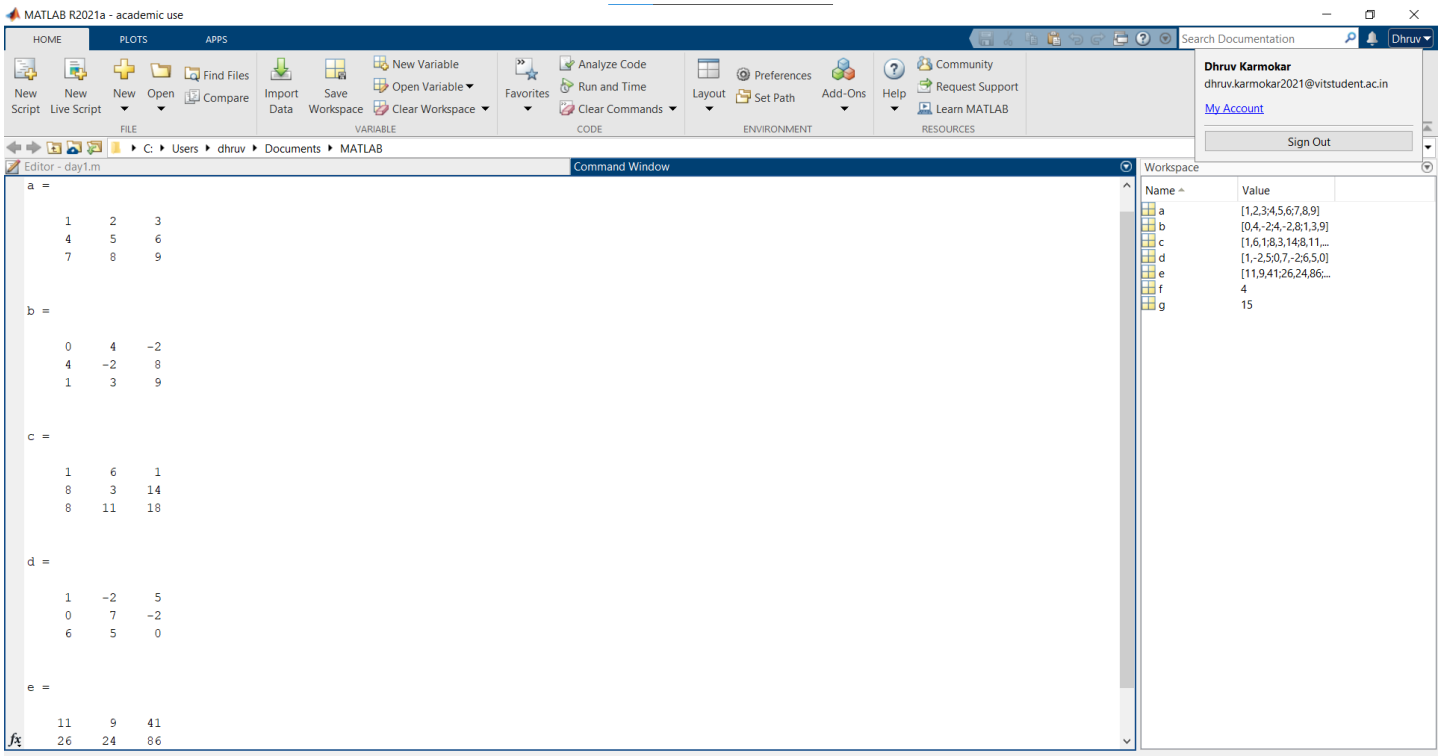
1) Simple mathematical operations:

```
clc
a=2;
b=3;
c=a+b
d=a-b
e=a*b
f=a^2
g=c+10
```



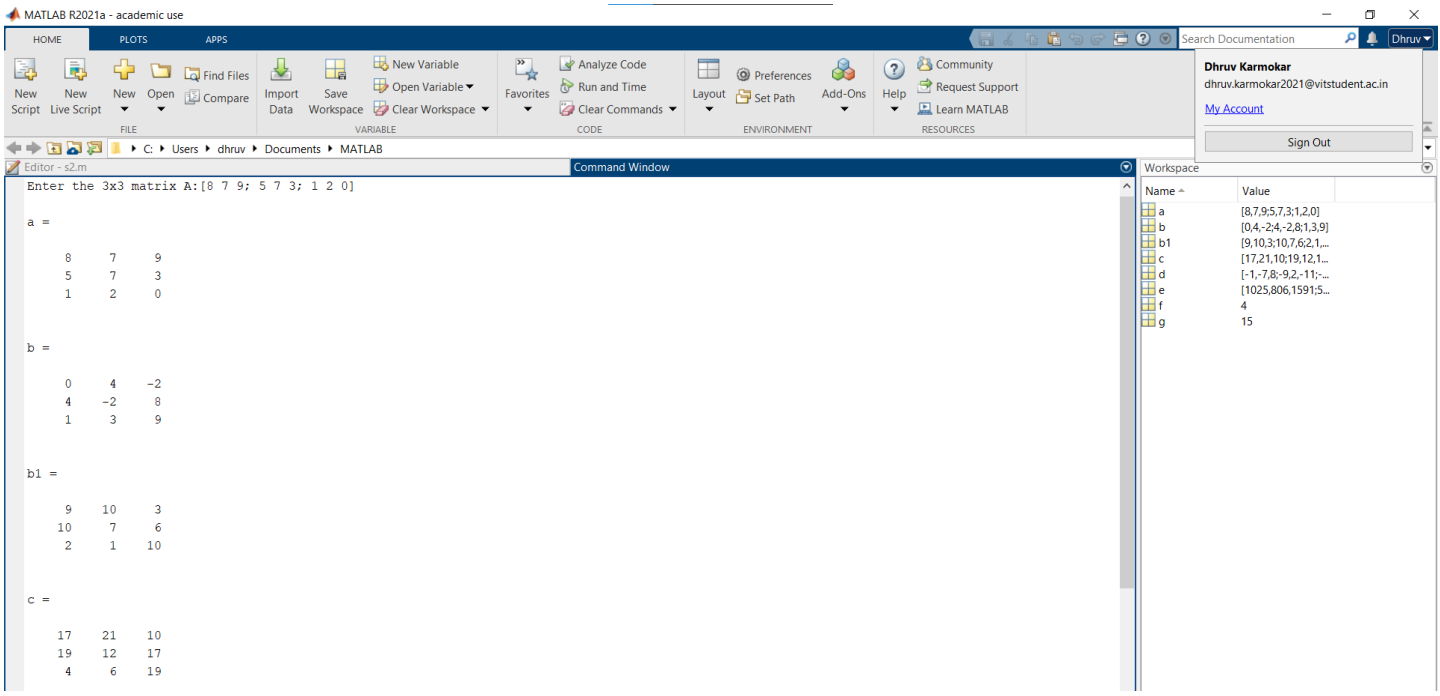
2) Simple Matrices:

```
clc
a=[1 2 3; 4 5 6; 7 8 9]
b=[0 4 -2; 4 -2 8; 1 3 9]
c=a+b
d=a-b
e=a*b
```



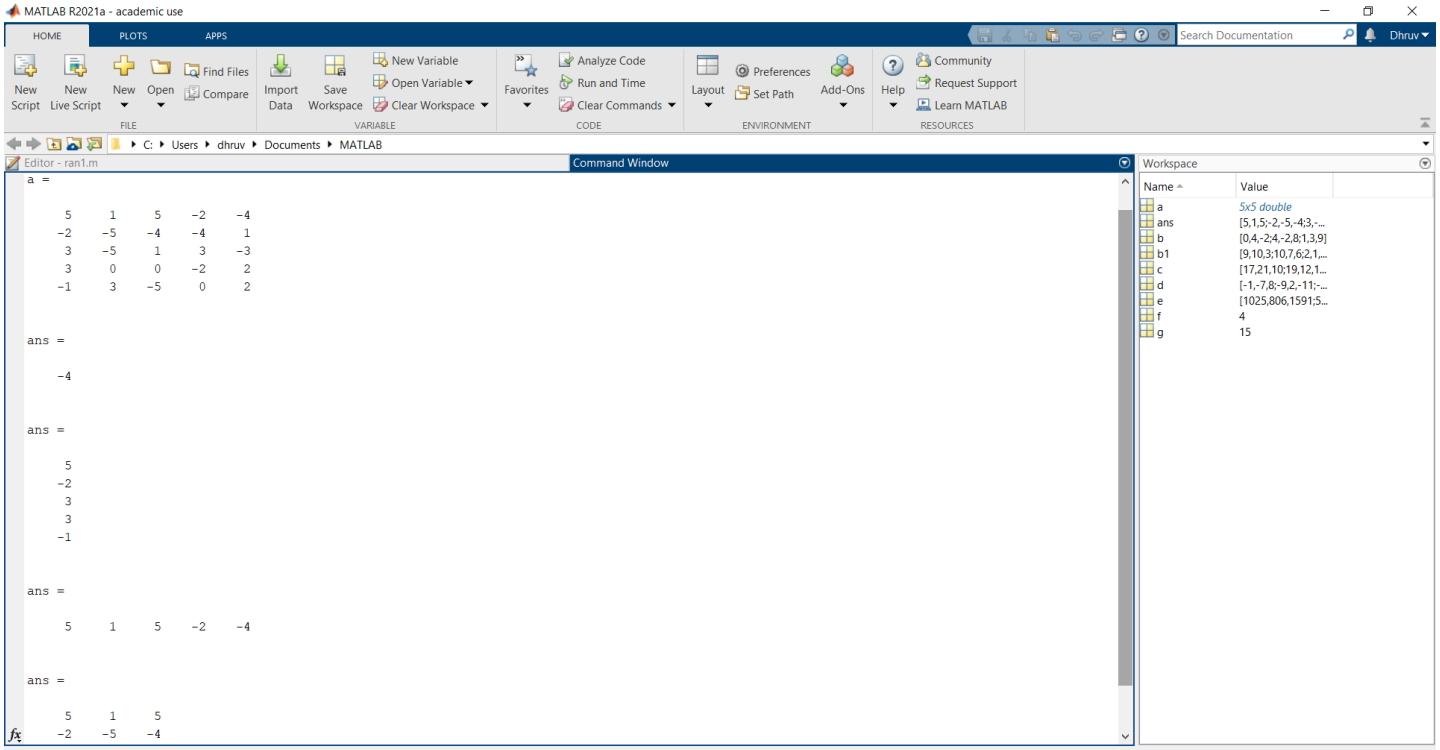
3) Code to add the matrix:

```
clc
%code to add the matrix
a=input('Enter the 3x3 matrix A:')
b=[0 4 -2; 4 -2 8; 1 3 9 ]
b1=randi( [1 10], 3, 3)
c=a+b+b1
d=a-b-b1
e=a*b*b1
```



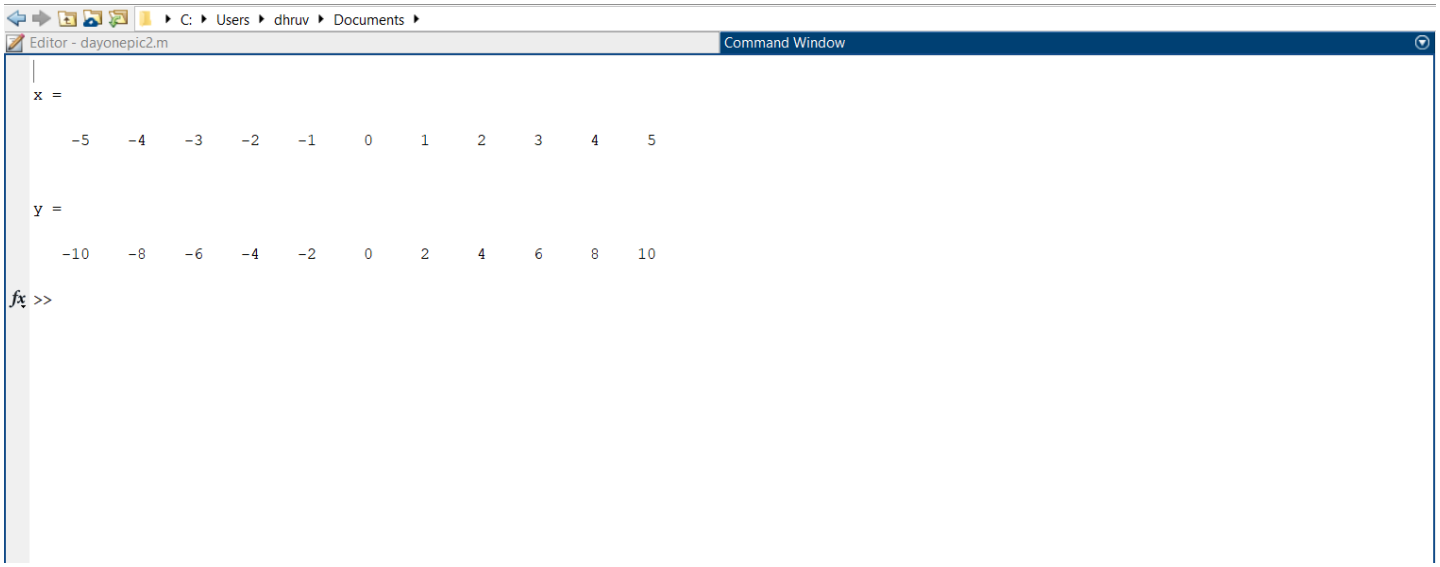
4) Code to access any element in the matrix:

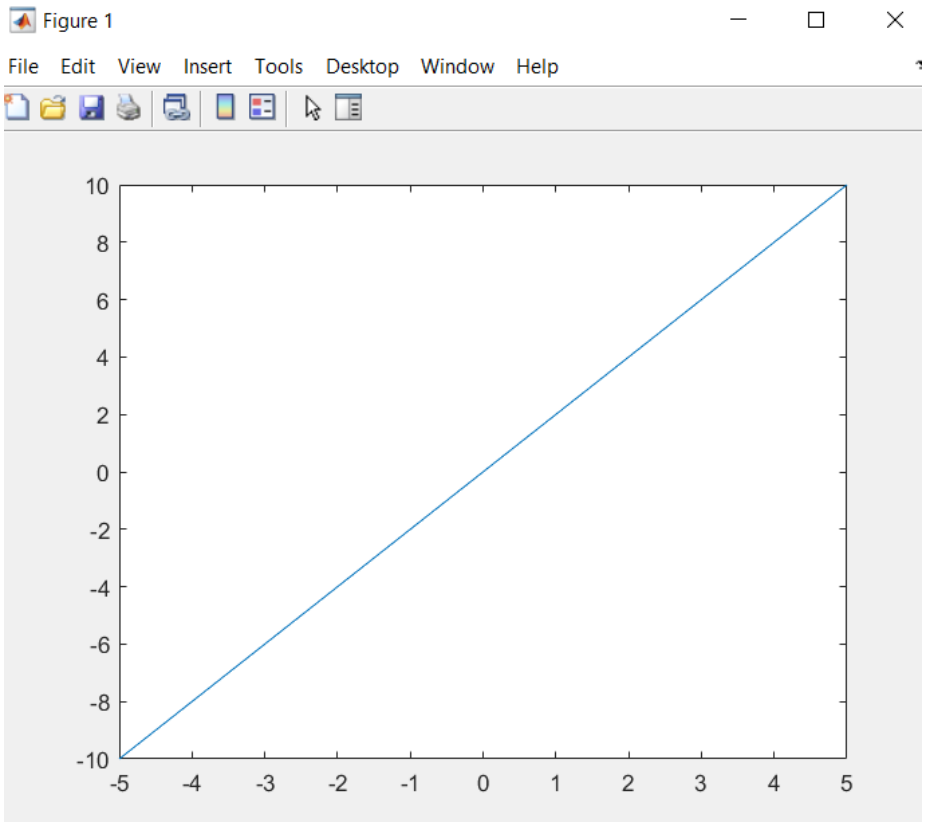
```
clc
a=randi([-5 5], 5, 5)
a(2,3)
a(:,1)
a(1,:)
a(1:3,1:3)
```



5) Plotting a graph:

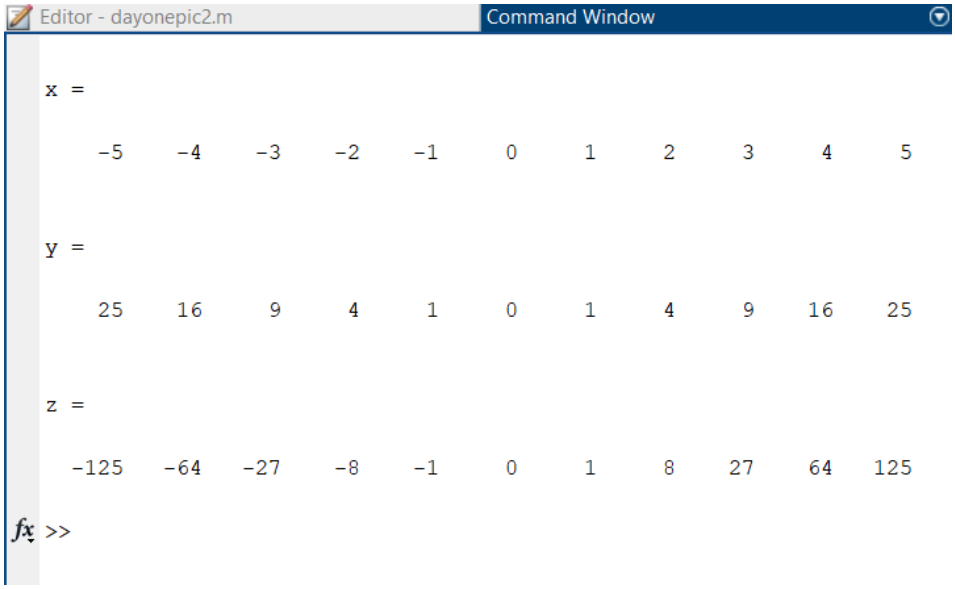
```
clc
x=-5:5
y=2*x
plot(x,y)
```

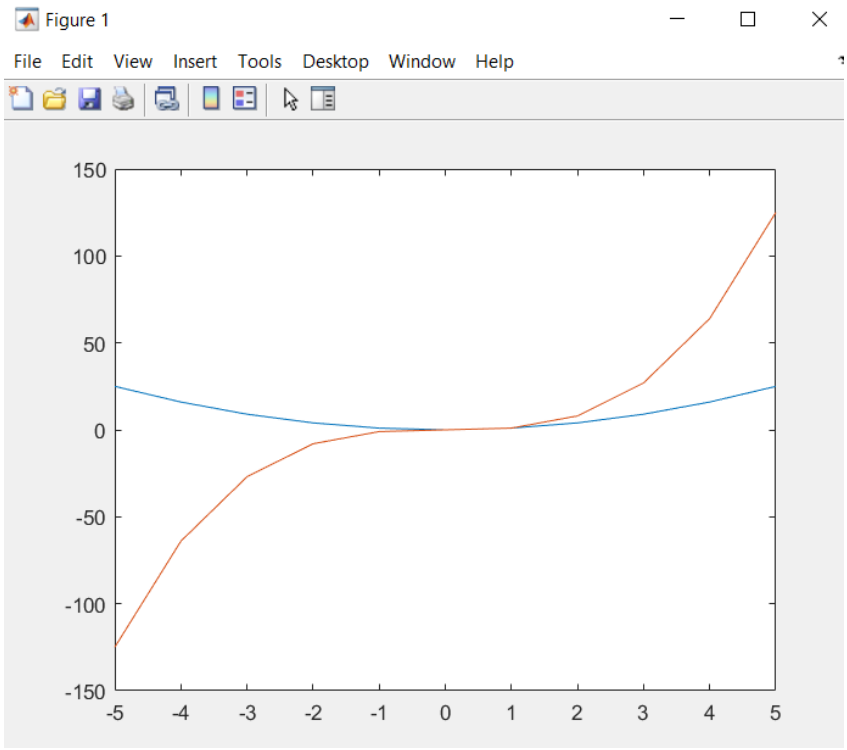




6) Plotting graphs:

```
clc
x=-5:5
y=x.^2
z=x.^3
plot(x,y,x,z)
```

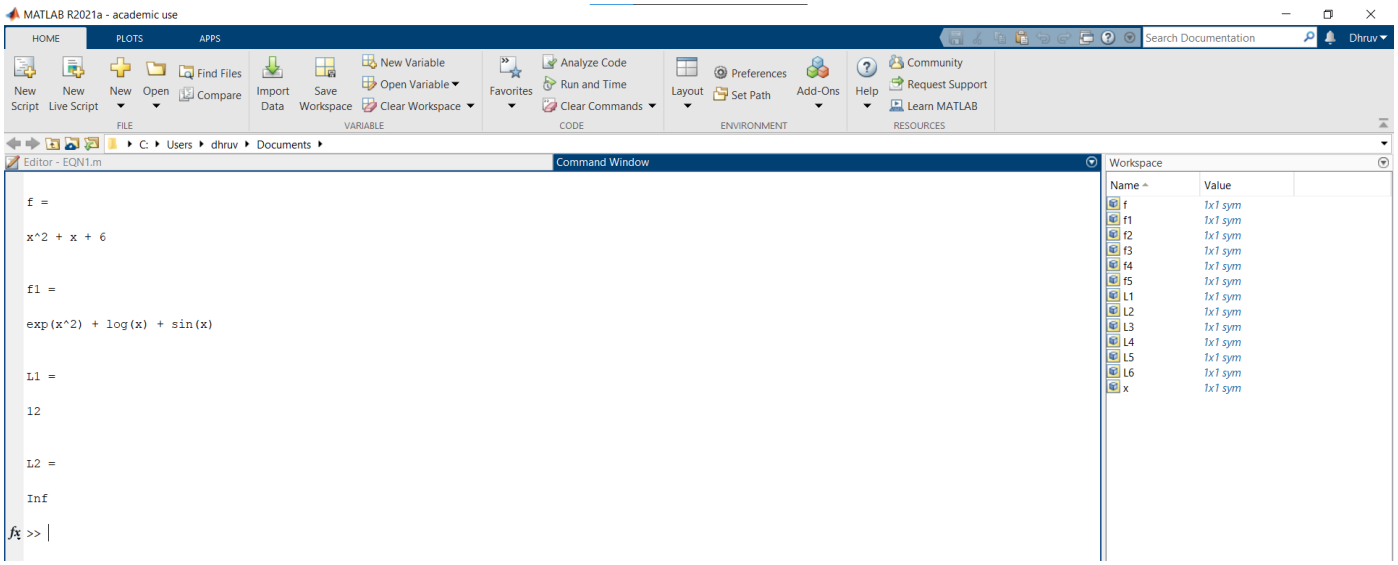




SECOND WEEK:

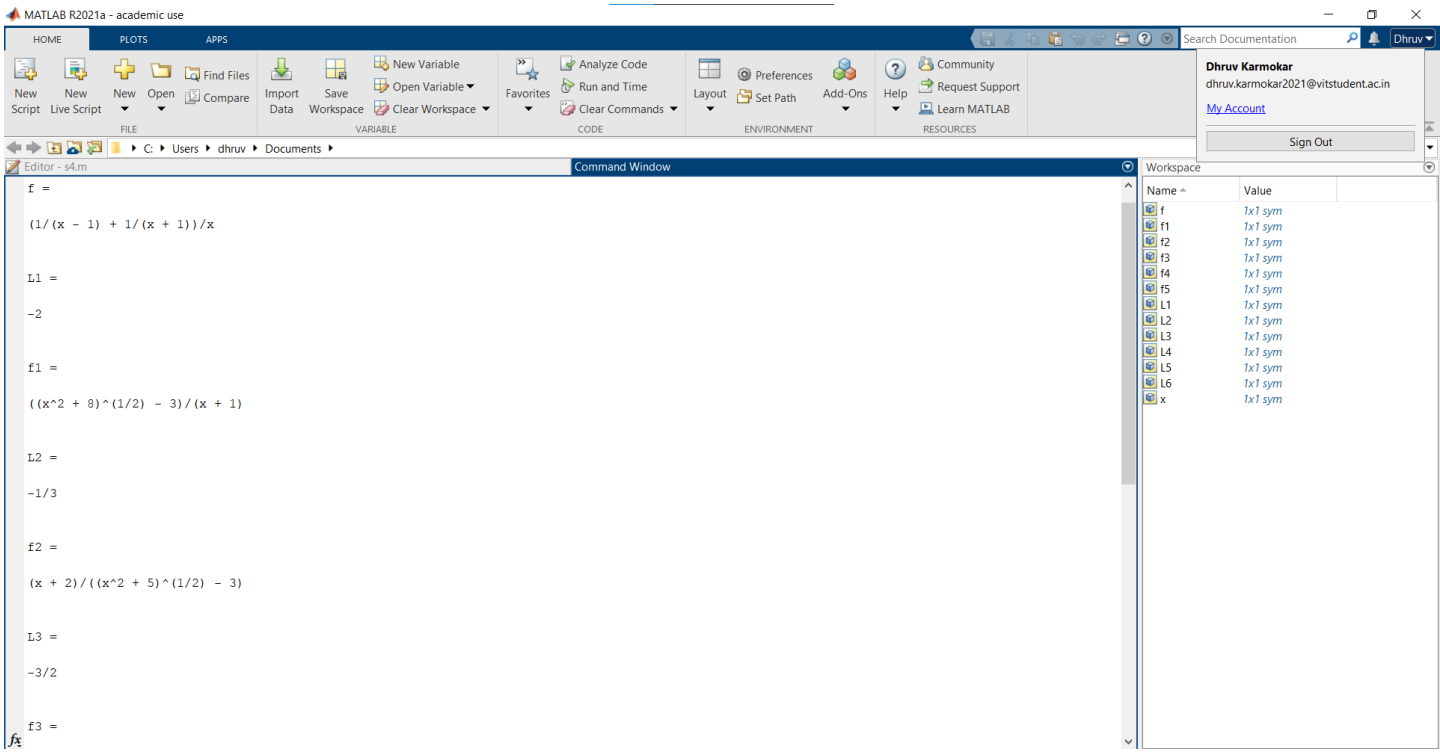
1) Identifying the limit of the function:

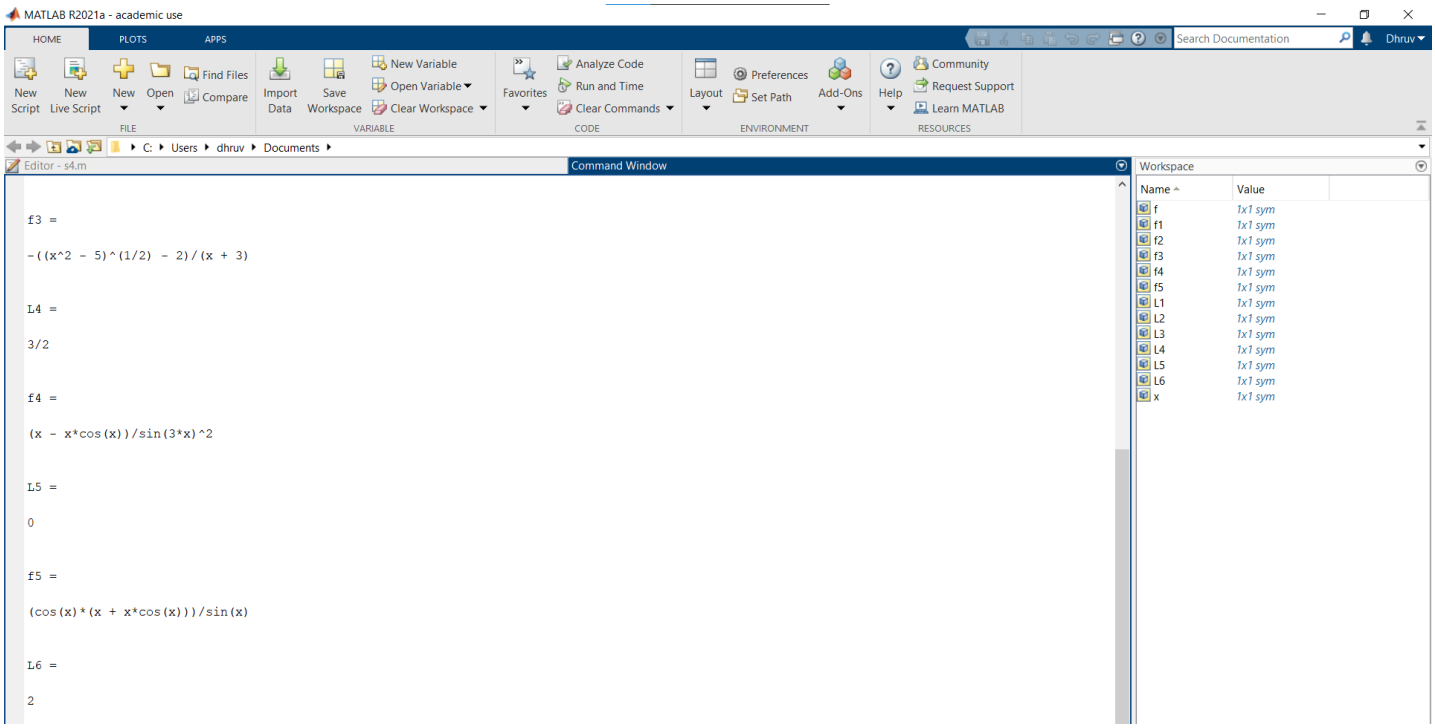
```
clc
syms x
f=x^2+x+6
f1=exp(x^2)+sin(x)+log(x)
L1=limit(f,x,2)
L2=limit(f1,x,inf)
```



2) Evaluating the limits in Matlab:

```
clc
syms x
f=(((1/(x-1))+(1/(x+1)))/x)
L1=limit(f, x, 0)
f1=((sqrt(x^2+8)-3)/(x+1))
L2=limit(f1, x, -1)
f2=(x+2)/(sqrt(x^2+5)-3)
L3=limit(f2, x, -2)
f3=(2-sqrt(x^2-5))/(x+3)
L4=limit(f3, x, -3)
f4=(x-x*cos(x))/sin(3*x)^2
L5=limit(f4, x, 0)
f5=(x+x*cos(x))/sin(x)*cos(x)
L6=limit(f5, x, 0)
```





3) Finding derivatives using matlab:

```
clc
syms x
f1=(5*x^3-x^4)^7
d1=diff(f1)
f2=1/(3*x-2)
d2=diff(f2)
f3=sin(x)^5
d3=diff(f3)
s1=solve(f1)
v1=subs(f1, 2)
```

```
f1 =

(- x^4 + 5*x^3)^7


d1 =

7*(- x^4 + 5*x^3)^6*(- 4*x^3 + 15*x^2)


f2 =

1/(3*x - 2)


d2 =

-3/(3*x - 2)^2
```

```
f3 =

sin(x)^5


d3 =

5*cos(x)*sin(x)^4


s1 =

0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
0
5
5
5
5
5
5
5


v1 =

4586471424
```

4)Plotting Sin x and Cos x:

```
x = [0 : 0.01: 10];
y = sin(x) ;
g = cos(x) ;
plot(x, y, x, g, '.-'), legend( 'Sin(x)', 'Cos(x)')
```

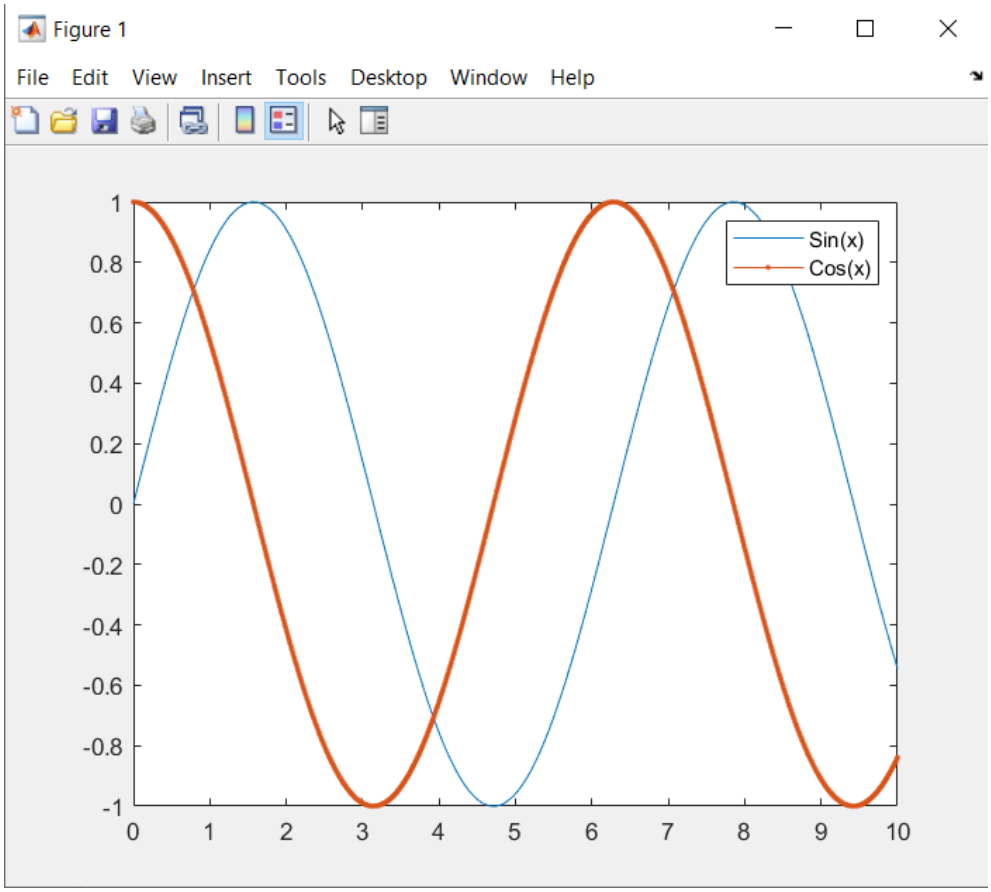


Figure 1
File Edit View Insert Tools Desktop Window Help
Sin(x)
Cos(x)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
0 1 2 3 4 5 6 7 8 9 10