MATLAB REPORT

NAME: VARANASI KASYAP

REG.NO: 20BCE7315

S.No	TOPIC	DATE
1	Solving system of linear equations	29-Jan-2021
2	Non-homogenous system (Traffic flow problem)	05-Feb-2021
3	Google page rank algorithm	12-Feb-2021
4	Solving system of ODEs or Hill Cypher problem	19-Feb-2021
5	Solving Legendres equation using power series method	26-Feb-2021
6	Solving Bessels equation using Frobenius method	05-Mar-2021
7	Bessels function-II	12-Mar-2021
8	Finding the steady state solution of the vibrating system using Fourier series	26-Mar-2021
9	Fourier series-II	09-Apr-2021
10	Solving difference equation using Z Transform	16-Apr-2021

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Lab Assignment- system of linear equations

Q) when propane burns in oxygen, it produces carbon dioxide and water, balance the chemical equation and derive the balanced equation.

$C_2H_8 + O_2 \longrightarrow CO_2 + H_2O$

Answer: $x_1C_2H_8 + x_2O_2 \longrightarrow x_3CO_2 + x_4H_2O$

Equations: $2x_1 - x_3 = 0$

$4x_1 - x_4 = 0$

$2x_2 - 2x_3 - x_4 = 0$

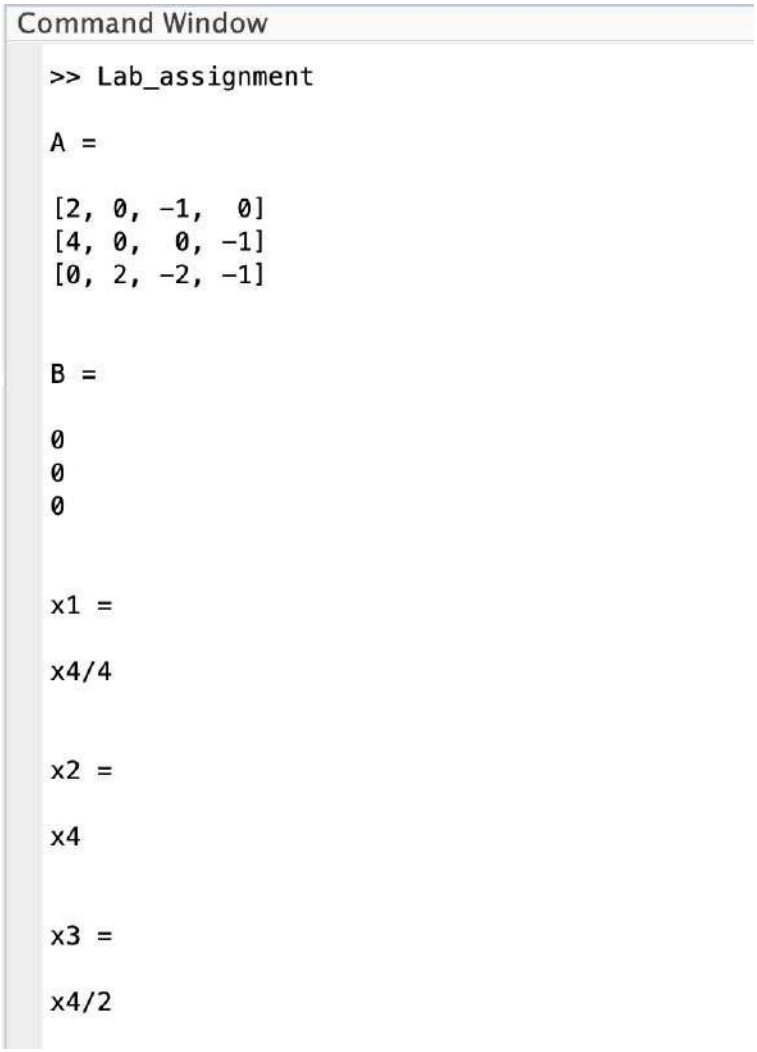
INPUT

Editor – /Users/sirichinta/Downloads/untitled folder/Lab_assignment.m*

Lab_assignment.m*

```
1 -    syms x1 x2 x3 x4
2 -    eq1 = (2*x1 - 1*x3 == 0);
3 -    eq2 = (4*x1 - 1*x4 == 0);
4 -    eq3 = (2*x2 - 2*x3 - 1*x4 == 0);
5 -    [A,B] = equationsToMatrix([eq1, eq2, eq3],[x1,x2,x3,x4]);
6 -    [x1, x2, x3] = solve(eq1, eq2, eq3);
7
```

OUTPUT



Result

x1 = x4/4 , x1 = 1

x2 = x4 , x2 = 4

x3 = x4/2 , x3 = 2

x4 = 4 , x4 = 4

Balanced Equation is: $1(C_2H_8) + 4(O_2) \longrightarrow 2(CO_2) + 4(H_2O)$

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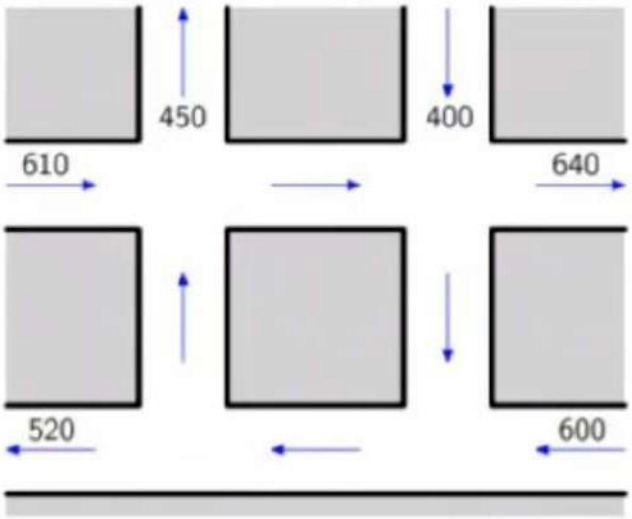
Lab Assignment MAT1002--Lab 2

Write the MATLAB code to solve the following problems.

1. Traffic Flow: The traffic flow of a city during peak hours is given blow. Find the best possible way to get rid of the traffic jam during peak hours.



Equations: **x1 - x4 = 160**

x4 - x2 = 240

x3 - x2 = 600

x3 - x4 = 520

INPUT

Editor - /Users/sirichinta/Downloads/untitled folder/assignment.m*

Lab_assignment.m | assignment.m* | +

```
1 -    syms x1 x2 x3 x4
2 -    eq1 = (1*x1 - 1*x4 == 160);
3 -    eq2 = (1*x1 - 1*x2 == 240);
4 -    eq3 = (1*x3 - 1*x2 == 600);
5 -    eq4 = (1*x3 - 1*x4 == 520);
6 -    [A,B] = equationsToMatrix([eq1, eq2, eq3, eq4],[x1,x2,x3,x4]);
7 -    aug = [A,B];
8 -    rref(aug)
9 -    [x1, x2, x3] = solve(eq1, eq2, eq3, eq4);
```

OUTPUT

Editor – /Users/sirichinta/Downloads/untitled folder/assignment.m

Command Window

```
>> assignment

A =

[1,  0, 0, -1]
[1, -1, 0,  0]
[0, -1, 1,  0]
[0,  0, 1, -1]


B =

160
240
600
520


aug =

[1,  0, 0, -1, 160]
[1, -1, 0,  0, 240]
[0, -1, 1,  0, 600]
[0,  0, 1, -1, 520]


ans =

[1, 0, 0, -1, 160]
[0, 1, 0, -1, -80]
[0, 0, 1, -1, 520]
[0, 0, 0,  0,   0]


x1 =

x4 + 160


x2 =

x4 - 80


x3 =

x4 + 520
```

x1 = x4 + 160 , x1 = 300 + 160

x2 = x4 - 80 , x2 = 300 - 80

x3 = 520 + x4 , x3 = 520 + 300

x4 = 300 , x4 = 300

x1 = 460

x2 = 220

x3 = 820

x4 = 300

Rank of matrix A is 3.

Rank is less than the no.of unknowns so this linear equation has infinitely many solutions.

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Lab Assignment MAT1002-Lab 3

Write a Matlab code for Google page rank algorithm.

INPUT:

Editor – /Users/sirichinta/Downloads/untitled folder/assignment3.m*

untitled3.m | untitled5.m | untitled6.m | creategpmatrix.m | assignment3.m*

```
function G = creategmatrix(gij,n)
gij = [2,3; 1,2; 3,1; 4,3; 1,4; 4,1; 1,3; 2,4];
n = 4;
ri = ones(n,n);
cj = zeros(n,n);
linksize = size(gij);
numgij = linksize(1);
for i = [1:numgij]
cj(gij(i,2),gij(i,1)) = 1;
end
for i = [1:n]
if (sum(cj(:,i)) > 0)
cj(:,i) = cj(:,i)/sum(cj(:,i));
else
cj(:,i) = ones(n,1)/n;
end
end
G = 0.15/n*ri + 0.85*cj
end
```

OUTPUT:

Command Window

```
>> assignment3

G =

    0.0375    0.0375    0.8875    0.4625
    0.3208    0.0375    0.0375    0.0375
    0.3208    0.4625    0.0375    0.4625
    0.3208    0.4625    0.0375    0.0375


ans =

    0.0375    0.0375    0.8875    0.4625
    0.3208    0.0375    0.0375    0.0375
    0.3208    0.4625    0.0375    0.4625
    0.3208    0.4625    0.0375    0.0375

fx >>
```

Given Matrix

G =

0	**0**	**1**	**1**
1	**0**	**0**	**0**
1	**1**	**0**	**1**
1	**1**	**0**	**0**

ans =

0.0375	**0.0375**	**0.8875**	**0.4625**
0.3208	**0.0375**	**0.0375**	**0.0375**
0.3208	**0.4625**	**0.0375**	**0.4625**
0.3208	**0.4625**	**0.0375**	**0.0375**

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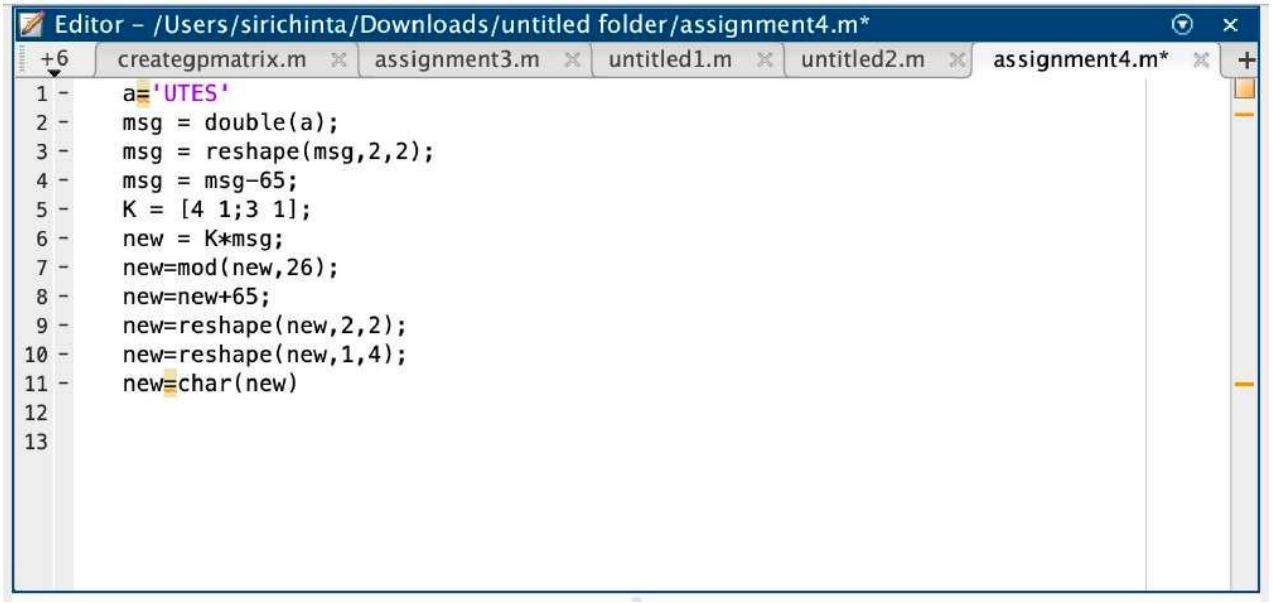
Lab Assignment MAT1002--Lab 4

Hill Cipher Encryption and Decryption MATLAB Code

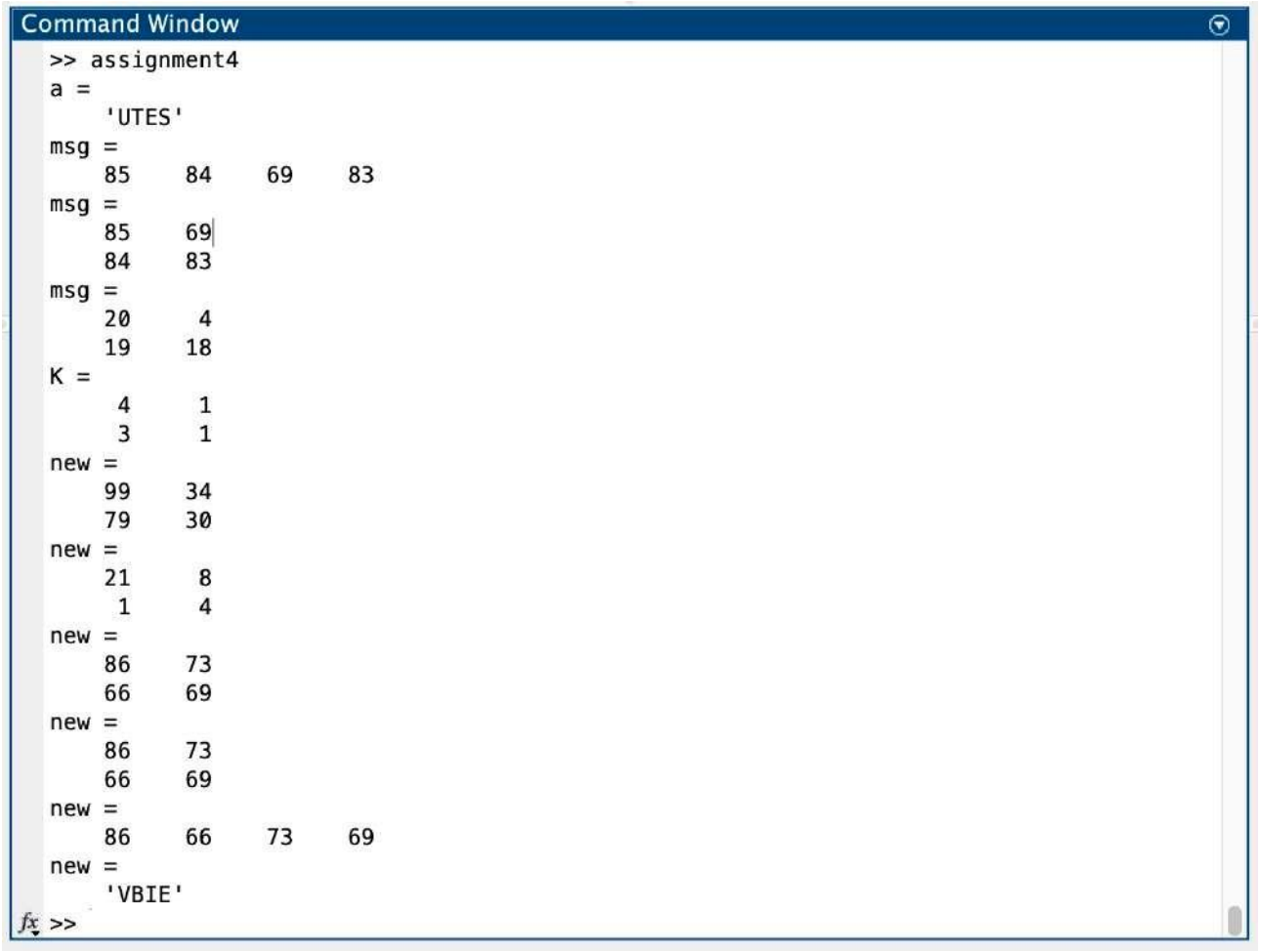
Q) Use the matrix [4 1; 3 1] to obtain the Hill cipher encryption for the plain text message 'UTES'.

Encryption Code:

INPUT



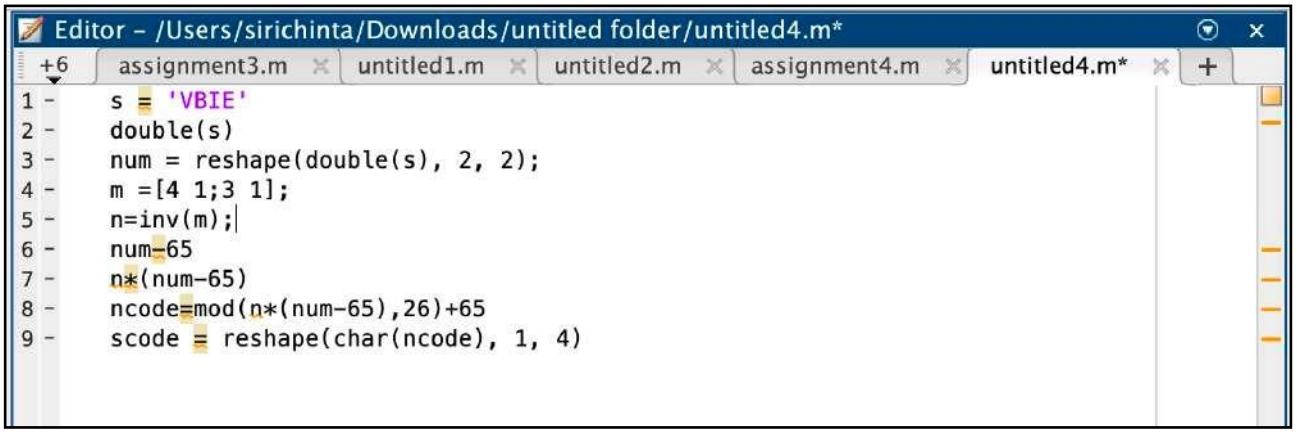
OUTPUT



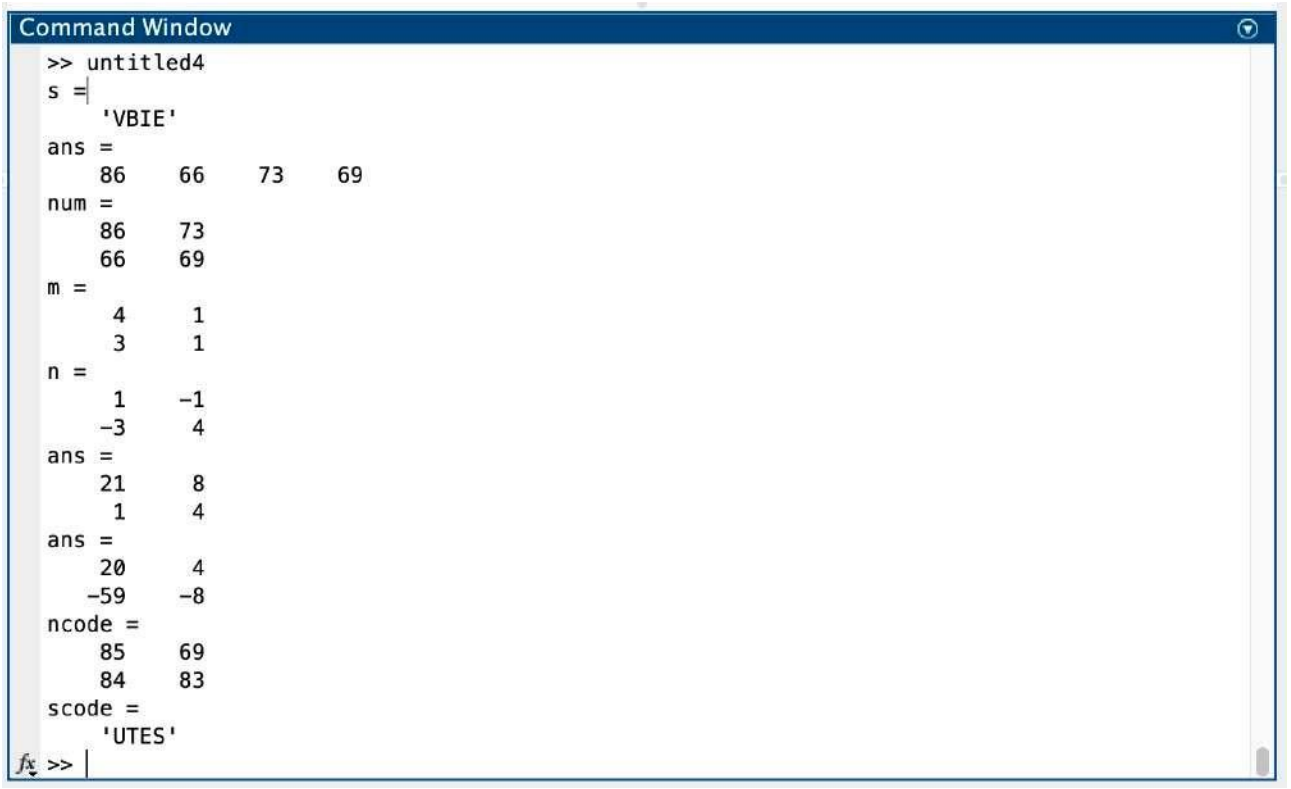
The Encrypted Message of 'UTES' is 'VBIE'

Decryption Code:

INPUT



OUTPUT



The Decrypted Message of 'VBIE' is 'UTES'

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Lab Assignment MAT1002--Lab 5

Q1)

INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/Lab_Assignment_5.m*

Lab_Assignment_5.m* | Lab_assignment_5_2.m | assignment3.m | untitled1.m

```
1 -    syms y(x) x;
2 -    A = x^2*diff(y,x,2)+x*diff(y,x)+(x^2-4)*y == 0
3 -    dsolve(A)
4
```

OUTPUT:

Command Window

```
>> Lab_Assignment_5

A(x) =

x^2*diff(y(x), x, x) + y(x)*(x^2 - 4) + x*diff(y(x), x) == 0


ans =

C1*besselj(2, x) + C2*bessely(2, x)

fx >>
```

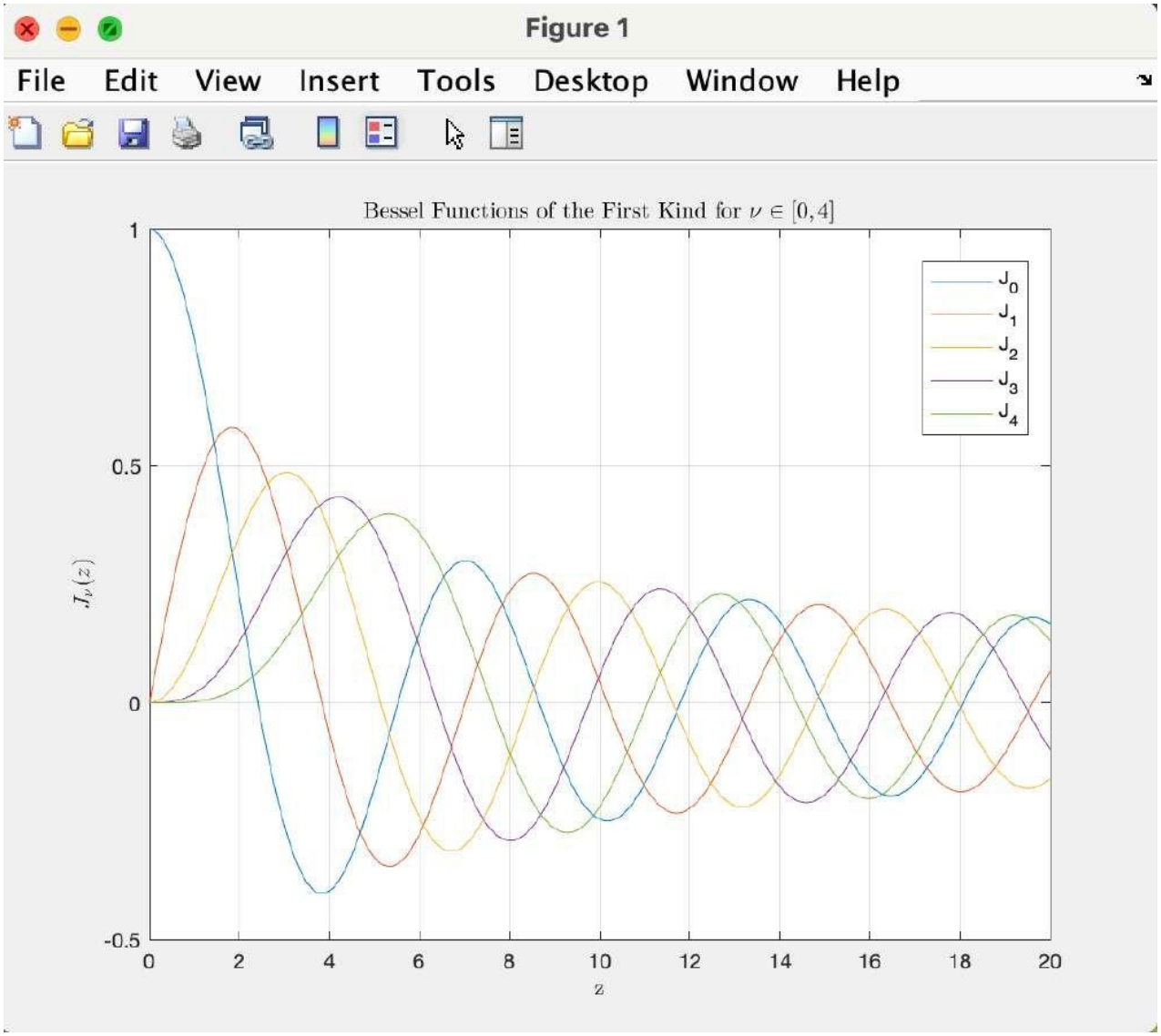
INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/Lab_assignment_5_2.m

Lab_Assignment_5.m | Lab_assignment_5_2.m | assignment3.m | untitled1.m

```
z = 0:0.1:20;
J = zeros(5,201);
for i = 0:4
    J(i+1,:) = besselj(i,z);
end
plot(z,J)
grid on
legend('J_0','J_1','J_2','J_3','J_4','Location','Best')
title('Bessel Functions of the First Kind for $\nu \in [0, 4]$','interpreter','latex')
xlabel('z','interpreter','latex')
ylabel('$J_\nu(z)$','interpreter','latex')
```

OUTPUT:



Lab Assignment MAT1002--Lab 6

Q1) INPUT:

Editor – /Users/sirichinta/Downloads/untitled folder/Lab_Assignment_5.m*

Lab_Assignment_5.m* | Lab_assignment_5_2.m | assignment3.m | untitled1.m

```
1 -  syms y(x) x;
2 -  A = x^2*diff(y,x,2)+x*diff(y,x)+(x^2-4)*y == 0
3 -  dsolve(A)
4
```

OUTPUT:

Command Window

```
>> Lab_Assignment_5

A(x) =

x^2*diff(y(x), x, x) + y(x)*(x^2 - 4) + x*diff(y(x), x) == 0


ans =

C1*besselj(2, x) + C2*bessely(2, x)

fx >>
```

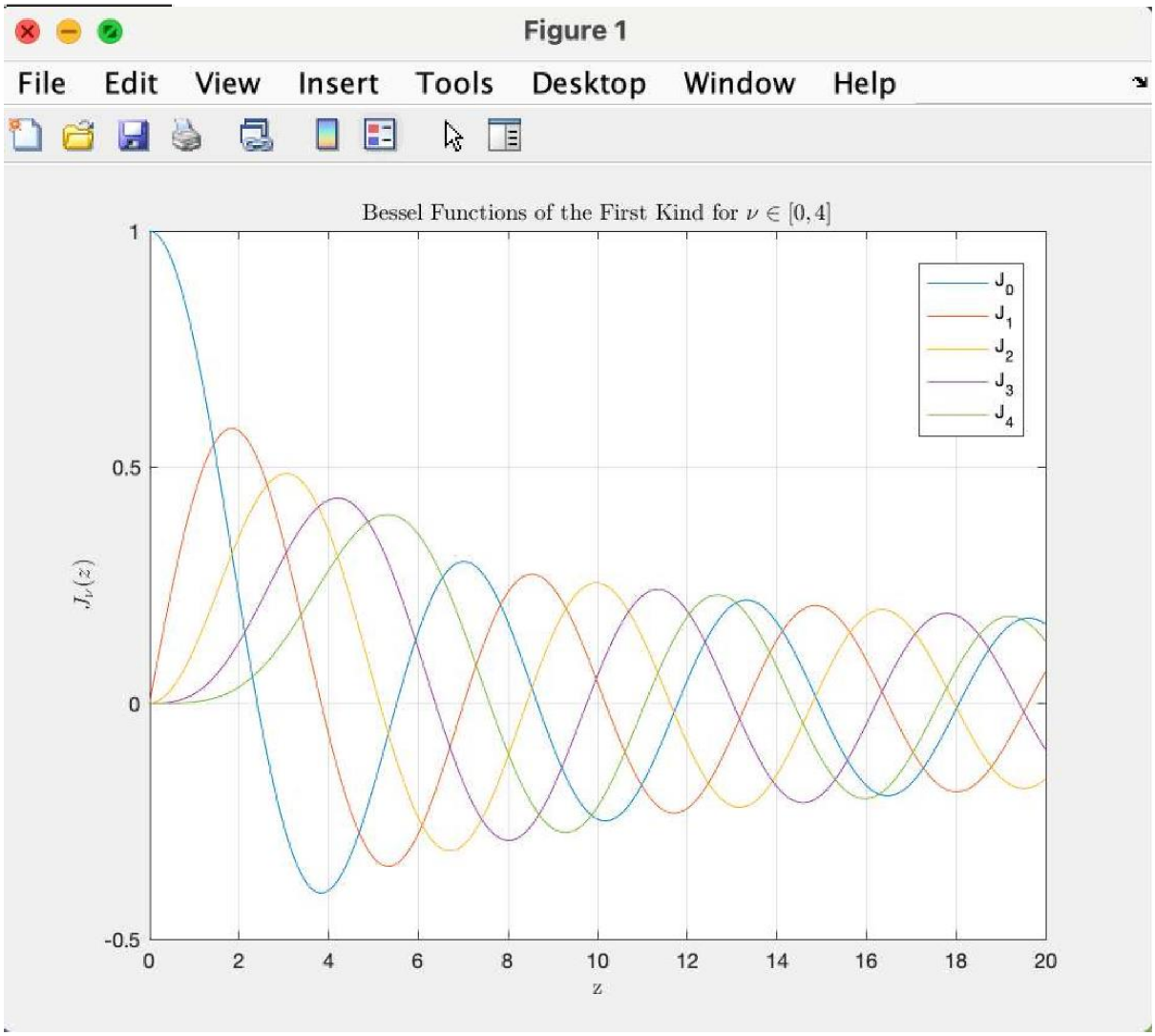
INPUT:

Editor – /Users/sirichinta/Downloads/untitled folder/Lab_assignment_5_2.m

Lab_Assignment_5.m | Lab_assignment_5_2.m | assignment3.m | untitled1.m

```
1 -  z = 0:0.1:20;
2 -  J = zeros(5,201);
3 -  for i = 0:4
4 -      J(i+1,:) = besselj(i,z);
5 -  end
6 -  plot(z,J)
7 -  grid on
8 -  legend('J_0','J_1','J_2','J_3','J_4','Location','Best')
9 -  title('Bessel Functions of the First Kind for $\nu \in [0, 4]$','interpreter','latex')
10 - xlabel('z','interpreter','latex')
11 - ylabel('$J_\nu(z)$','interpreter','latex')
12
13
```

OUTPUT:



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Lab Assignment MAT1002--Lab 7

Question :-

Solve the problems using MATLAB and write neat codes using dsolve, Power series methods.

$$x^2y'' + xy' + (3x^2 - 2)y = 0, \tag{25a}$$

$$x^2y'' + 2xy' + (x^2 - 1)y = 0, \tag{25b}$$

$$x^2y'' + xy' - (4x^2 + \frac{1}{2})y = 0, \tag{25c}$$

$$t^2\ y'' - 3\ t\ y' + 4y = 0 \tag{25d}$$

INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/Lab_Assignment_7.m

Lab_Assignment_7.m | untitled1.m | untitled2.m | assignment4.m | untitled4

```
fprintf('25.a')
syms y(x) x;
A = x^2*diff(y,x,2)+x*diff(y,x)+(3*x^2-2)*y == 0
dsolve(A)

fprintf('25.b')
B = x^2*diff(y,x,2)+2*x*diff(y,x)+(x^2-1)*y == 0
fprintf('In terms of Y')
dsolve(B)
fprintf('In terms of Z')
syms z(x);
n = sqrt(5/4);
B = x^2*diff(z,x,2)+2*x*diff(z,x)+(x^2-n^2)*z == 0
B1 = dsolve(B)

fprintf('25.c')
C = x^2*diff(y,x,2)+x*diff(y,x)-(4*x^2+(1/2))*y == 0
dsolve(C)

fprintf('25.d')
syms y(t) t;
D = t^2*diff(y,t,2)-(3*t*diff(y,t))+4*y == 0
dsolve(D)
```

OUTPUT:

Command Window

```
>> Lab_Assignment_7
25.a
A(x) =

x^2*diff(y(x), x, x) + x*diff(y(x), x) + y(x)*(3*x^2 - 2) == 0


ans =

C1*besselj(2^(1/2), 3^(1/2)*x) + C2*bessely(2^(1/2), 3^(1/2)*x)

25.b
B(x) =

x^2*diff(y(x), x, x) + y(x)*(x^2 - 1) + 2*x*diff(y(x), x) == 0

In terms of Y
ans =

(C1*besselj(5^(1/2)/2, x))/x^(1/2) + (C2*bessely(5^(1/2)/2, x))/x^(1/2)

In terms of Z
B(x) =

x^2*diff(z(x), x, x) + z(x)*(x^2 - 5/4) + 2*x*diff(z(x), x) == 0


B1 =

(C1*besselj(6^(1/2)/2, x))/x^(1/2) + (C2*bessely(6^(1/2)/2, x))/x^(1/2)

25.c
C(x) =

x^2*diff(y(x), x, x) + x*diff(y(x), x) - y(x)*(4*x^2 + 1/2) == 0


ans =

C1*besselj(2^(1/2)/2, x*2i) + C2*bessely(2^(1/2)/2, x*2i)

25.d
D(t) =

4*y(t) + t^2*diff(y(t), t, t) - 3*t*diff(y(t), t) == 0


ans =

C2*t^2 + C1*t^2*log(t)

fx >>
```

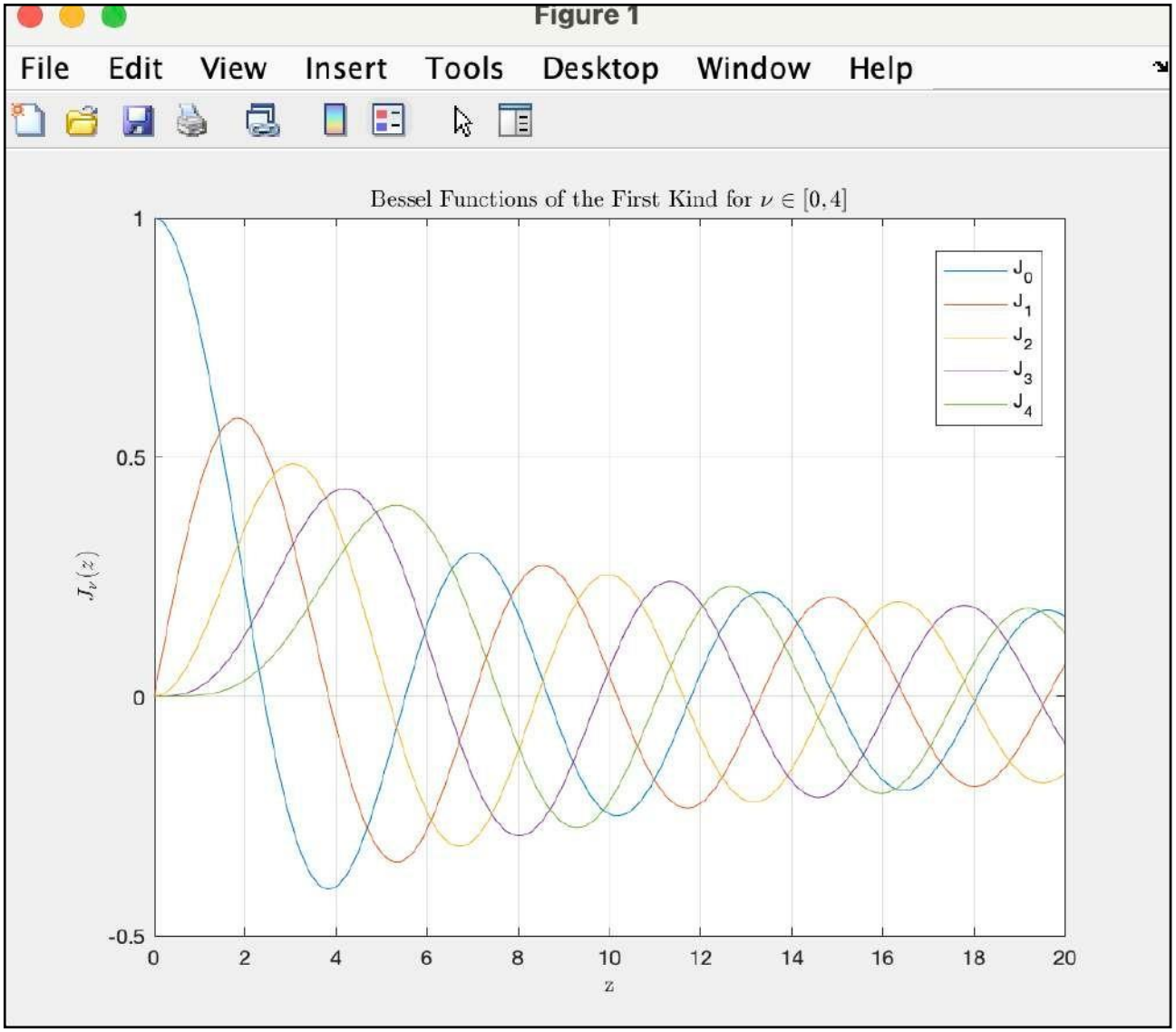
INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/Lab_Assignment_7_2.m

Lab_Assignment_7_2.m | assignment4.m | untitled4.m | Lab_assignment_5_2.m

```
z = 0:0.1:20;
J = zeros(5,201);
for i = 0:4
    J(i+1,:) = besselj(i,z);
end
plot(z,J)
grid on
legend('J_0','J_1','J_2','J_3','J_4','Location','Best')
title('Bessel Functions of the First Kind for $\nu \in [0, 4]$','interpreter','latex')
xlabel('z','interpreter','latex')
ylabel('$J_\nu(z)$','interpreter','latex')
```

OUTPUT



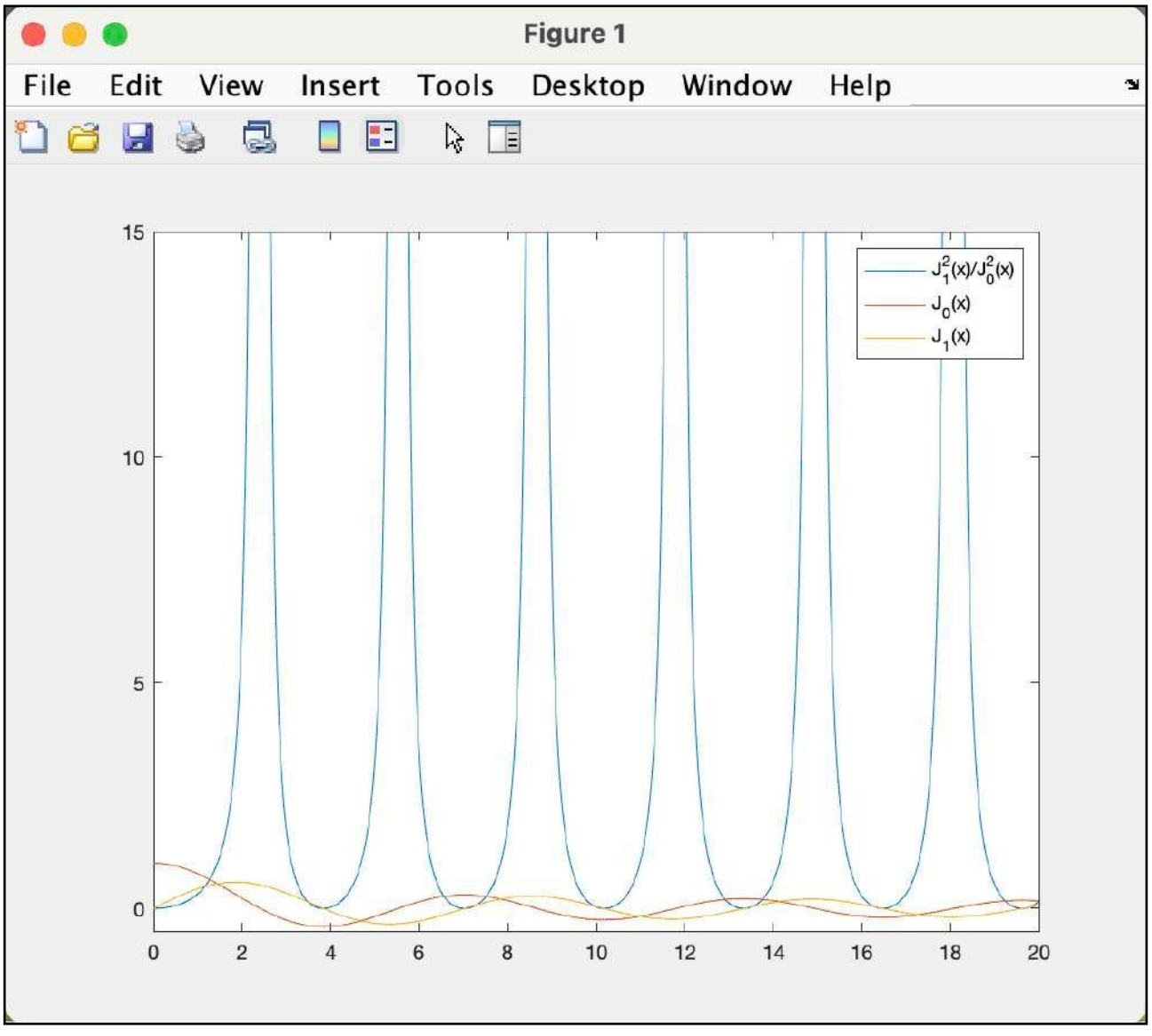
INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/untitled2.m

untitled2.m | assignment3.m | Lab_Assignment_7.m | untitled1.m

```
1 -  x = 0:0.01:20;
2 -  C1 = besselj(0, x);
3 -  C2 = besselj(1, x);
4 -  C = C2.^2./C1.^2;
5 -  plot(x,C,x,C1,x,C2)
6 -  legend('J_1^2(x)/J_0^2(x)','J_0(x)','J_1(x)')
7 -  axis([0 20 -0.5 15])
8
```

OUTPUT



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Lab Assignment MAT1002--Lab 8

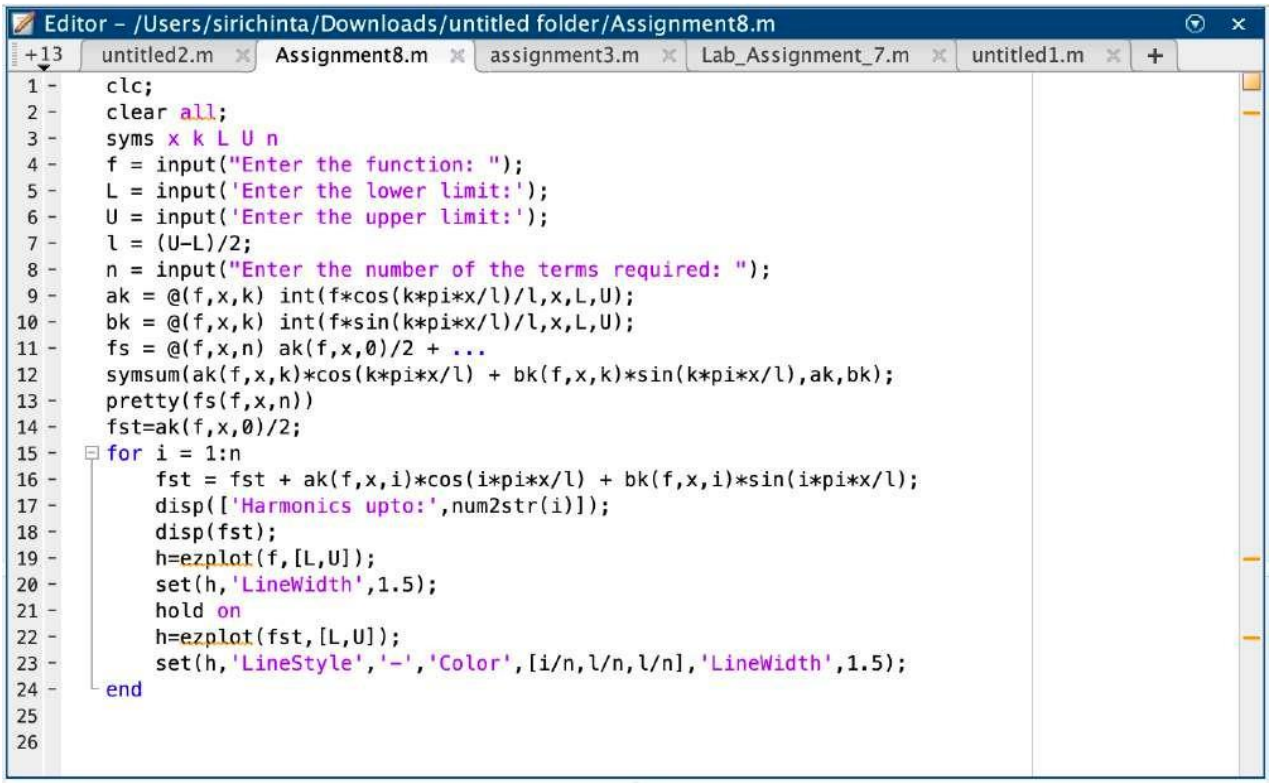
Question 1:

$$y'' + 0.05y' + 25y = r(t)$$

$$r(t) = \begin{cases} t + \pi/2 & -\pi \le t \le 0 \\ t - \pi/2 & 0 \le t \le \pi \end{cases}$$

Find the steady-state solution for y(t)

INPUT:




```
clc;
clear all;
syms x k L U n
f = input("Enter the function: ");
L = input('Enter the lower limit:');
U = input('Enter the upper limit:');
l = (U-L)/2;
n = input("Enter the number of the terms required: ");
ak = @(f,x,k) int(f*cos(k*pi*x/l)/l,x,L,U);
bk = @(f,x,k) int(f*sin(k*pi*x/l)/l,x,L,U);
fs = @(f,x,n) ak(f,x,0)/2 + ...
symsum(ak(f,x,k)*cos(k*pi*x/l) + bk(f,x,k)*sin(k*pi*x/l),ak,bk);
pretty(fs(f,x,n))
fst=ak(f,x,0)/2;
for i = 1:n
    fst = fst + ak(f,x,i)*cos(i*pi*x/l) + bk(f,x,i)*sin(i*pi*x/l);
    disp(['Harmonics upto:',num2str(i)]);
    disp(fst);
    h=ezplot(f,[L,U]);
    set(h,'LineWidth',1.5);
    hold on
    h=ezplot(fst,[L,U]);
    set(h,'LineStyle','-','Color',[i/n,l/n,l/n],'LineWidth',1.5);
end
```

OUTPUT:

Editor – /Users/sirichinta/Downloads/untitled folder/Assignment8.m

Command Window

```
Enter the function: diff(diff(x))+0.05*diff(x)+25*x
Enter the lower limit:-pi
Enter the upper limit:pi
Enter the number of the terms required: 15
{                     sin(pi k) (pi k - f sin(pi k) 2)    1                          k
{                     ------------------------------- + --                  if  ---- in integer
{                                    2   2              20                      2 pi
{                                 10 k  pi
{
{  (exp(-#3) (#1 sin(pi k) 500i - exp(#3) sin(pi k) 500i + #2 sin(pi k) 500i - #1  if  not k/(2 pi) in integer
{
{     exp(#3) sin(pi k) 500i + k #1 sin(pi k) - k exp(#3) sin(pi k) - k #2
{
{     sin(pi k) + k pi exp(#3) cos(pi k) 500i - k pi #2 cos(pi k) 500i - k pi #1
{
{     cos(pi k) 500i + k #1 exp(#3) sin(pi k) + k pi #1 exp(#3)
{
{                             2                 1
{     cos(pi k) 500i))/(20 k  pi (#1 - 1)) + --
{                                             20

where

   #1 == exp(k 1i)

            / f sin(pi k) 4i \
   #2 == exp| -------------- |
            \       pi       /

         f sin(pi k) 2i
   #3 == --------------
                pi


Harmonics upto:1
50*sin(x) + 1/20

Harmonics upto:2
50*sin(x) - 25*sin(2*x) + 1/20

Harmonics upto:3
(50*sin(3*x))/3 - 25*sin(2*x) + 50*sin(x) + 1/20

Harmonics upto:4
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 50*sin(x) + 1/20

Harmonics upto:5
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) + 50*sin(x) + 1/20

Harmonics upto:6
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + 50*sin(x) + 1/20
```

Command Window

```
Harmonics upto:7
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 + 50*sin(x) + 1/20

Harmonics upto:8
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + 50*sin(x) + 1/20

Harmonics upto:9
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 + 50*sin(x) + 1/20

Harmonics upto:10
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + 50*s

Harmonics upto:11
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + (50

Harmonics upto:12
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + (50

Harmonics upto:13
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + (50

Harmonics upto:14
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + (50

Harmonics upto:15
(50*sin(3*x))/3 - 25*sin(2*x) - (25*sin(4*x))/2 + 10*sin(5*x) - (25*sin(6*x))/3 + (50*sin(7*x))/7 - (25*sin(8*x))/4 + (50*sin(9*x))/9 - 5*sin(10*x) + (50

fx >>
```

OUTPUT:

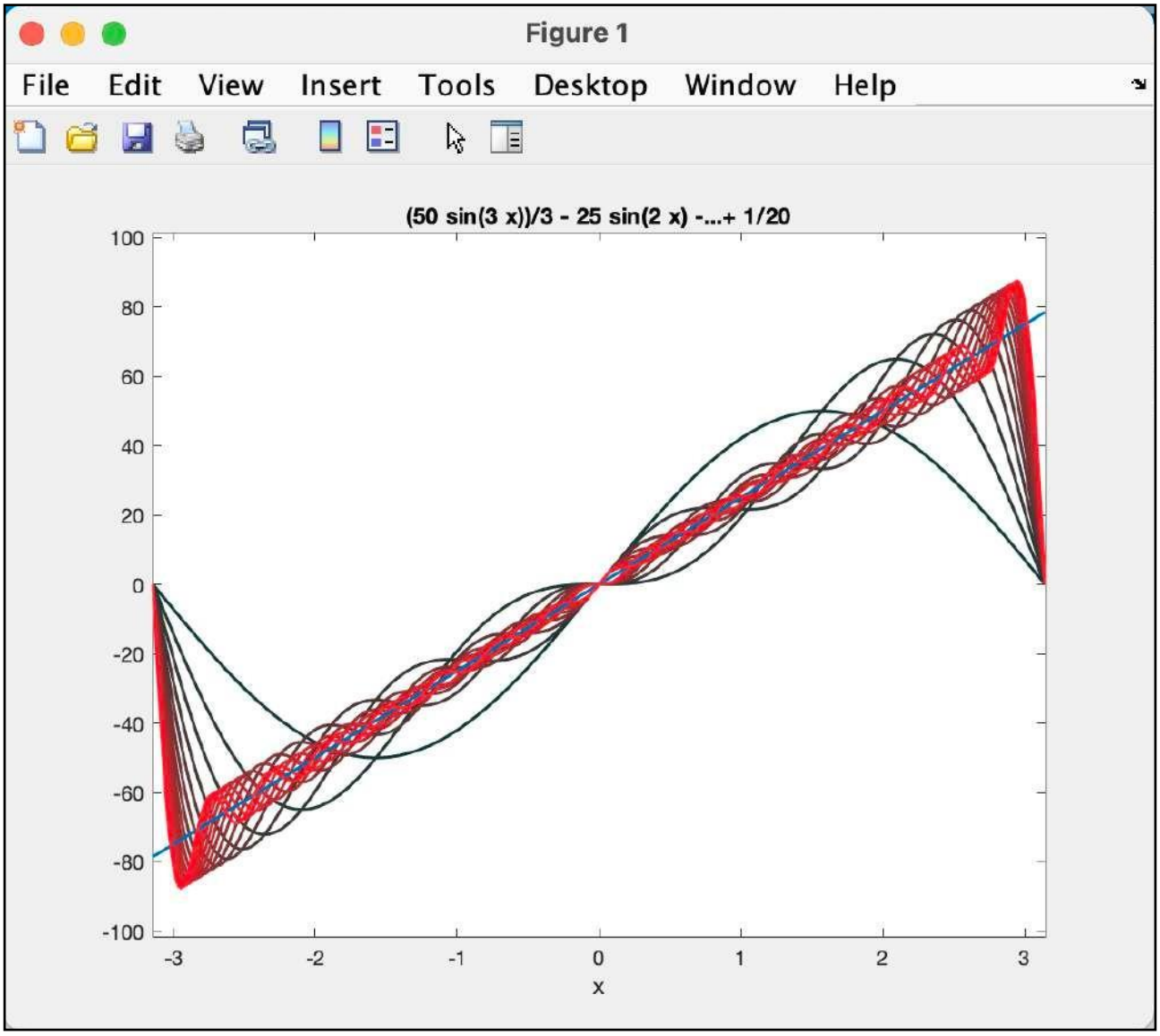


Figure 1
File Edit View Insert Tools Desktop Window Help
(50 sin(3 x))/3 - 25 sin(2 x) -...+ 1/20
100
80
60
40
20
0
-20
-40
-60
-80
-100
-3
-2
-1
0
1
2
3
x

Name : KASYAP
Reg no. : 20BCE7315

Lab Assignment MAT1002--Lab 9

Question 1:

INPUT:

Editor – /Users/sirichinta/Downloads/untitled folder/untitled11.m*

+15 | untitled11.m* | Assignment8.m | assignment3.m | Lab_Assignment_7.m | +

```
clc
syms x l X Y N r a b
p=input('enter the period:');
l=p/2;
X=input('enter the X-vector:');
Y=input('enter the Y-vector:');
N=length(X);
r=input('enter the number of terms in series:');
 a_0=(2/N)*sum(Y);
for n=1:r
 a(n)=(2/N)*sum(Y.*cos(n*pi*X/l));
 b(n)=(2/N)*sum(Y.*sin(n*pi*X/l));
end
for n=1:r
 H(n)=a(n)*cos(n*pi*x/l)+b(n)*sin(n*pi*x/l);
end
 HS=(a_0)/2+sum(H);
 disp('Harmonic series is given by')
 disp(HS)
 plot(X,Y,'*r')
 hold on
 ezplot(HS,[0,p])

```

OUTPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/untitled11.m

Command Window

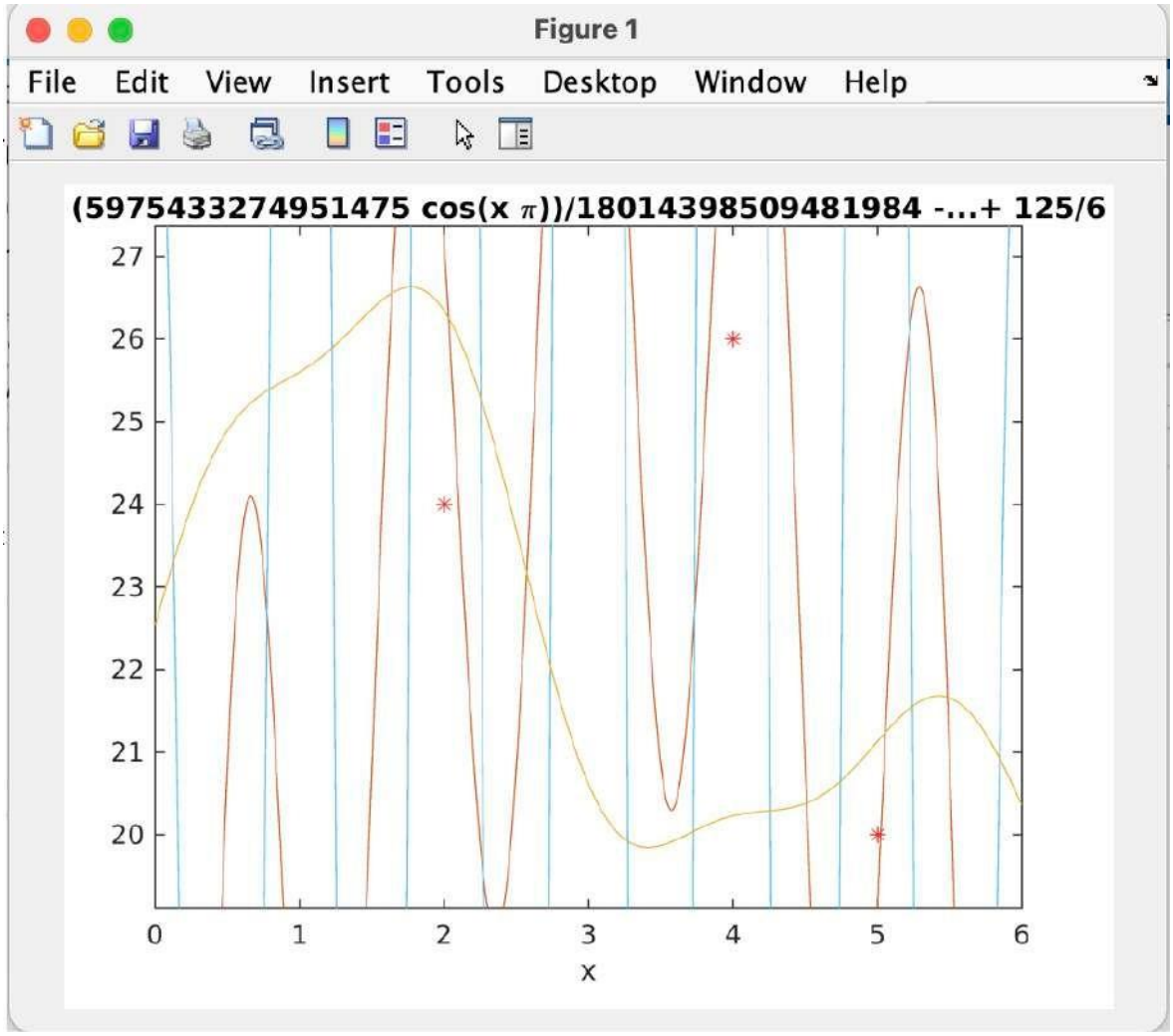
$$\frac{5975433274951475\cos(\pi x)}{18014398509481984} - \frac{1513598043636569\cos\left(\frac{\pi x}{2}\right)}{2251799813685248} + \frac{2456331318556169\cos\left(\frac{\pi x}{3}\right)}{4503599627370496} - \frac{1192180}{4503}$$

where

$$\sigma_1 = \frac{7\pi x}{6}$$

$$\sigma_2 = \frac{5\pi x}{6}$$

$$\sigma_3 = \frac{2\pi x}{3}$$



Name : KASYAP
Reg no. : 20BCE7315

Lab Assignment MAT1002--Lab 10

Question 1:

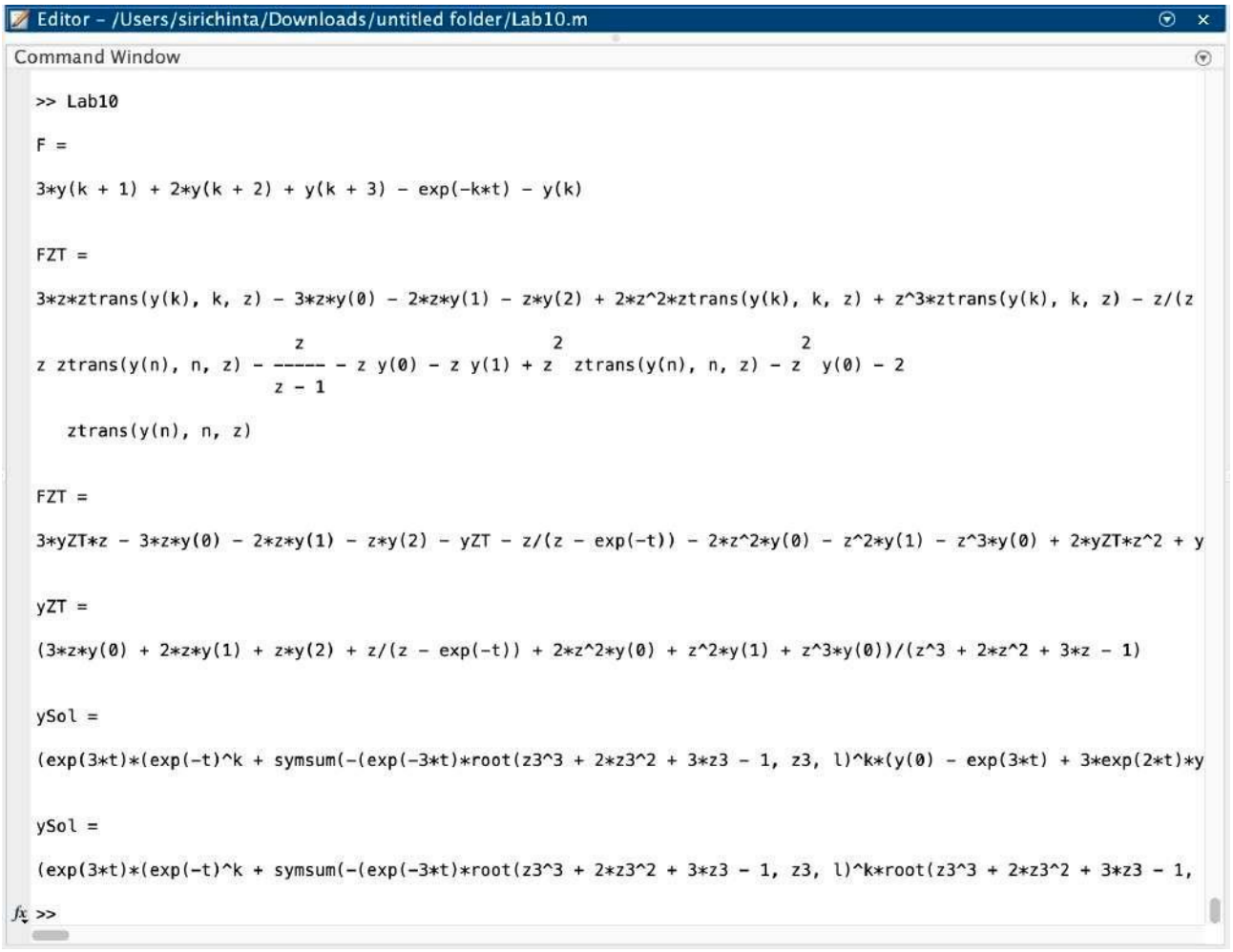
INPUT:

Editor - /Users/sirichinta/Downloads/untitled folder/Lab10.m

+15 | Lab10.m | assignment4.m | untitled4.m | Lab_assignment_5_2.m | untitled.m | +

```
1 -  syms y(k) z t
2 -  assume(n>=0 & in(n,'integer'))
3 -  F = y(k+3) + 2*y(k+2) + 3*y(k+1)- y(k) - exp(-k*t)
4 -  FZT = ztrans(F,k,z)
5 -  pretty(X)
6
7 -  syms yZT
8 -  FZT = subs(FZT,ztrans(y(k),k,z),yZT)
9 -  yZT = solve(FZT,yZT)
10 -  ySol = iztrans(yZT,z,k);
11 -  ySol = simplify(ySol)
12 -  ySol = subs(ySol,[y(0) y(1) y(2)],[0,1,0])
13
14 -  kValues = 1:30;
15 -  ySolValues = subs(ySol,k,kValues);
16 -  ySolValues = double(ySolValues);
17 -  ySolValues = real(ySolValues);
18 -  stem(kValues,ySolValues)
19 -  xlabel('(k)')
20 -  ylabel('y(k)')
21 -  grid on
```

OUTPUT:



ySol =

(exp(3*t)*(exp(-t)^k + symsum(-(exp(-3*t)*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)^k*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)*(4*exp(2*t) - 2*exp(3*t) + 3*exp(t) + 2) - root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)^k + exp(-3*t)*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)^k*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)^2*(2*exp(2*t) - exp(3*t) + 2*exp(t) + 1))/(2*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l)^2 + 6*root(z3^3 + 2*z3^2 + 3*z3 - 1, z3, l) - 3), l, 1, 3)))/(3*exp(2*t) - exp(3*t) + 2*exp(t) + 1)

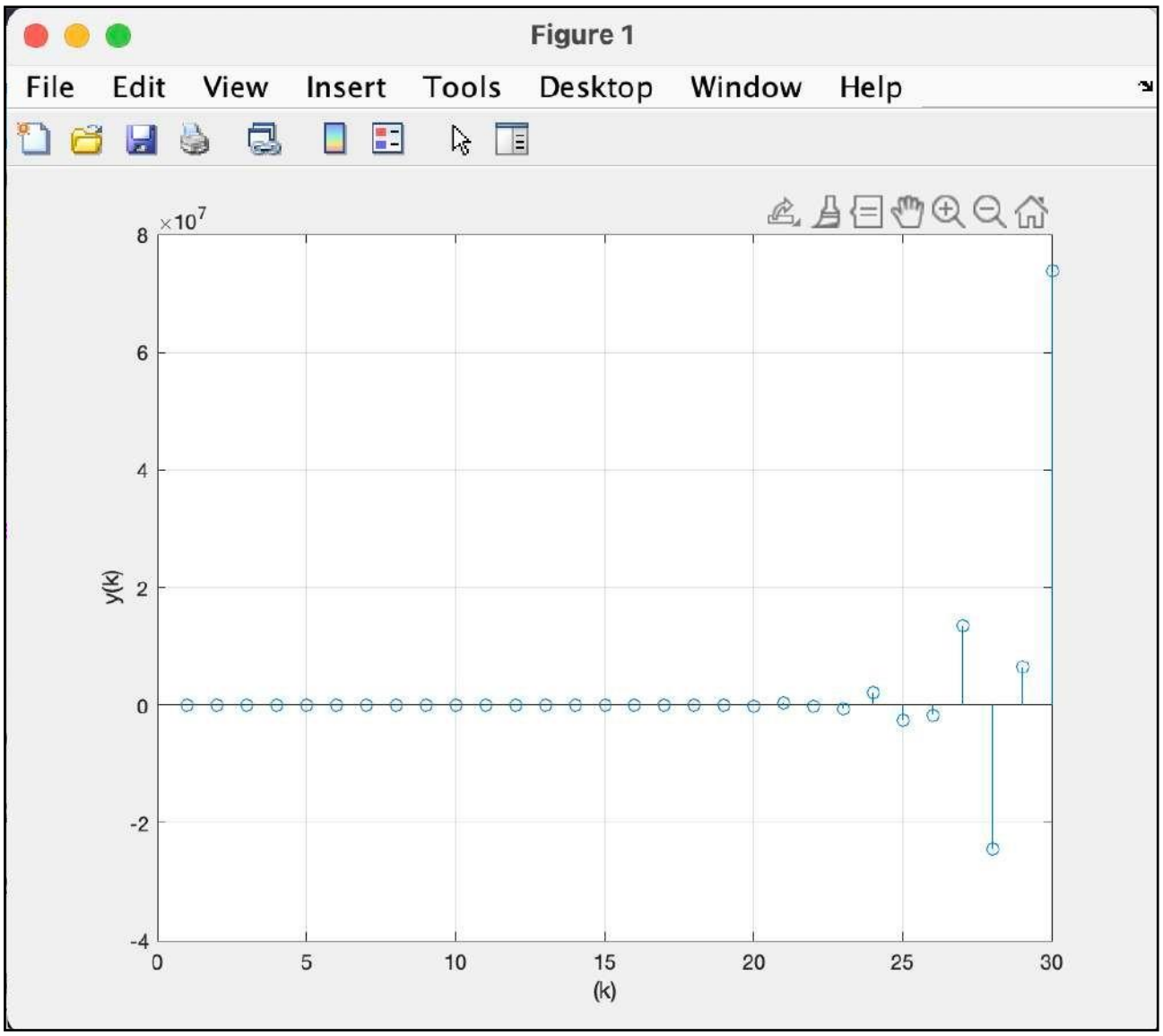


Figure 1
File Edit View Insert Tools Desktop Window Help
×10^7
8
6
4
2
0
-2
-4
y(k)
0 5 10 15 20 25 30
(k)