

Date - 24/07/25

 $x = 0:0.1:50;$ $y = \sin(x);$ $\text{plot}(x, y)$

grid on

Date - 28/07/25

1) $A = [1, 1, 1; 1, -1, 1; 1, -1, -1];$ $B = [1; 1; 1];$ $q = \text{inv}(A) * B$

Output

 $q = 1$

0

0

2) $[x, y] = \text{meshgrid}(1:0.01:10, 3:0.01:4);$ $z = x + \exp(-(x.^2 + y.^2));$ $\text{contour}(x, y, z);$ $\text{surf}(x, y, z)$ $z = x * \exp(-(x.^2 + y.^2));$ $\text{contour}(x, y, z);$ $\text{surf}(x, y, z)$

Date - 04/08/25

Write script in matlab to show no. from 1 to 5

```
a=0;  
for i=1:5;  
    a=a+i;  
    disp(a)
```

end

Output

1

2

3

4

5

Q2. Write a script file in matlab to multiply no. from 1 to 5.

```
a=1;
```

```
for i=1:5
```

```
    a = a.*i;
```

```
    fprintf('The sum is %.f\n', a);
```

```
end
```

Output

The sum is 1.00000

The sum is 2.00000

The sum is 6.00000

The sum is 24.00000

The sum is ~~120.00000~~ 120.00000

~~End~~

Date - 07/08/2025

- Q. Write a script in MATLAB to check whether a given set of numbers is odd or even.

```
a = [4, 5, 6, 7, 8, 9];
```

```
for i = 1:6
```

```
    if mod(a(i), 2) == 0
```

```
        fprintf('%d is even\n', a(i));
```

```
    else
```

```
        fprintf('%d is odd\n', a(i));
```

```
    end
```

```
Output end
```

⇒ Output

4 is even

5 is odd

6 is even

7 is odd

8 is even

Q. Date - 01/09/2025

- Q. Write a script file & a M-file function code for $1! + 2! + \dots + 10!$

```
function [i, a] = prog1(a)
```

```
b = 1;
```

```
a = 0;
```

```
for i = 1:10
```

```
    b = 1;
```



```
for k=1:i
    b = b*k;
end
a = a+b;
fprintf('The factorial of %d is %d\n', i, a)
end
disp(a)
end
```

Output

4037913

Q4 Date - 04/09/2025

Q. Write a program in Matlab to calculate the Matrix Multiplication of two 3x3 matrices

```
function [Output args] = U1 (input args)
a=input('Enter the first matrix : \n');
b=input('Enter the second matrix : \n');
for k=1:3
    for i=1:3
        c(k,i)=0;
        for j=1:3
            c(k,i) = c(k,i) + a(k,j) * b(j,i);
        end
    end
end
end
```

disp(e)

end

Output

Enter the first matrix

[1 0 0; 0 1 0; 0 0 1]

Enter the second matrix

[1 0 0; 0 1 0; 0 0 1]

1 0 0

0 1 0

0 0 1

Date - 15/09/2025

Q. Write a Matlab code for $\sum_{n=0}^{10} \frac{1}{n!}$

c=1;

for i=1:10

c=c*i;

end

~~c=c+1;~~ c=c+1;

d=1/c;

disp(d)

Output

2.7557e -07

Q Find a surface plot for $\cos x \cos y e^{-\frac{\sqrt{x^2+y^2}}{4}}$

```
[x,y]=meshgrid(0:0.1:20, 3:0.1:23)
```

```
z = cos(x) .* cos(y) .* exp(-(sqrt(x.^2+y.^2)/4));
```

```
surf(x,y,z)
```

Q Do a subplot of $\sin(x)$, $\cos(x)$, $\sin(x) \cdot \tan(x)$, $\cos^2(x) + \tan^2(x)$

```
x = 0:0.1:50;
```

```
y1 = sin(x)
```

```
subplot(2,2,1)
```

```
plot(x,y1)
```

```
y2 = cos(x);
```

```
subplot(2,2,2)
```

```
plot(x,y2)
```

```
subplot(2,2,3)
```

```
y3 = sin(x) .* tan(x);
```

```
plot(x,y3)
```

```
subplot(2,2,4)
```

```
y4 = cos(x).^2 + tan(x).^2;
```

```
plot(x,y4)
```

18/09/25

Q Write a Matlab function that takes an integer input n from user and prints pattern of asterisks (*)


```

function [output orig] = pattern (x)
n = input('The no. of rows you want.\n')
for i = 1:x
    for j = 1:i
        fprintf('*')
    end
    fprintf('\n')
end
for i = x-1:-1:1
    for j = 1:i
        fprintf('*')
    end
    fprintf('\n')
end
end
end

```

Output

```

* The no. of rows you want
* 3
*
**
***
**
*

```

~~30~~ Date - 30/10/25

- Q. Write a matlab code in M-file function from to add $\{f(1)\}^2 + \{f(2)\}^2 + \dots + \{f(10)\}^2$ when $f(n) = n^2 + 2n + 3$

```
sum = 0;
```

```
for i = 1:10
```

```
    U = i.^2 + 2*i + 3
```

```
    sum = sum + U.^2
```

```
end
```

```
disp (sum)
```

Output

42033

Date - 03/11/2025

- Q. Create a data file having 2 columns with 10 values in each column [x column, y column -]

Then find $\frac{\sum x \sum y}{\sum xy}$

```
load Qq.txt
```

```
x = Qq(:,1)
```

```
y = Qq(:,2)
```

```
a = 0;
```

```
b = 0;
```

```
c = 0;
```

```
d = 0;
```

```
for i = 1:10
```

```
    a = a + x(i);
```

```
    b = b + y(i);
```


Data in @Qq.txt

1 1
2 5
3 10
4 15
5 20
6 25
7 30
8 35
9 40
10 45

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```
c = c + x(i) + Y(i)
end
d = (a.*b) / c ;
dis (d)
end
```

Output

44. 2349

Date- 13/11/25

Q. Use the Fixed point Iteration method to find a root of the following non linear equation : $x^3 + 4x^2 - 10 = 0$

$fx = @(x) x.^3 + 4*x.^2 - 10;$

$gx = @(x) 0.5 * \text{Sqrt}(10 - x.^2);$

$x1 = 0.1;$

$e = 0.00001;$

$x2 = gx(x1)$

while abs($fx(x2)$) > e

$x1 = x2;$

$x2 = gx(x1);$

end

fprintf('The solution is %f', $x2$);

Output

The solution is 1.365230

Teacher's Signature _____

Date - 01/12/25

- a. Write a Matlab program in Script or M-function for the solution of $x^3 - 2x^2 - 5 = 0$ using Newton's method with accuracy 10^{-4}

```
% Newton Raphson method
f = @(x) x^3 - 2*x^2 - 5;
df = @(x) 3*x^2 - 4*x;
x = 1;
tolerance = 1e-4;
for i = 1:1000
    x1 = x - f(x)/df(x);
    if abs(x1 - x) < tolerance
        break;
    end
    x = x1;
end
disp(x)
```

Output

~~2.6909~~ 2.6906

3. Plot the following functions in a single plot and also subplot in the interval $0 \leq x \leq 2\pi$.

a) $\sin x + \cos x$ (b) $\sin x$ (c) $\cos x - \sin x$ (d) $\cos x \sin x$

% Subplot

$x = 0: 0.0001 : 2 * \pi;$

$y_1 = \sin(x) + \cos(x);$

subplot (2,2,1)

plot (x, y1)

$y_2 = \sin(x);$

subplot (2,2,2)

plot (x, y2)

$y_3 = \cos(x) - \sin(x);$

subplot (2,2,3)

plot (x, y3)

$y_4 = \cos(x) * \sin(x);$

subplot (2,2,4)

plot (x, y4)

%. single ~~plot~~ plot

$x = 0:0.01:2\pi;$

$y1 = \sin(x) + \cos(x);$

plot(x,y1)

hold on

$y2 = \sin(x);$

plot(x,y2)

hold on

$y3 = \cos(x) - \sin(x);$

plot(x,y3)

hold on

$y4 = \cos(x) * \sin(x);$

plot(x,y4)