

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

Wxto 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

Ans

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

```

~~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

Date - 04/09/2025

- Q. Write a program in Matlab to calculate the Matrix Multiplication of two 3×3 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) = b;
        for j=1:3
            c(k,i) = c(k,i) + a(k,j) * b(j,i);
        end
    end
end

```

disp(0)

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;~~

d = 1/c;

disp(d)

Output

2.7557e-07

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

$[x,y] = \text{meshgrid}(0:0.1:20, 0:0.1:20)$

$z = \cos(x) * \cos(y) * \exp(-(\sqrt{x^2+y^2})/4);$
 $\text{surf}(x,y,z)$

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

$x = 0:0.1:50;$

$y_1 = \sin(x);$

$\text{subplot}(2,2,1)$

$\text{plot}(x, y_1)$

$y_2 = \cos(x);$

$\text{subplot}(2,2,2)$

$\text{plot}(x, y_2)$

$\text{subplot}(2,2,3)$

$y_3 = \sin(x) * \tan(x);$

$\text{plot}(x, y_3)$

$\text{subplot}(2,2,4)$

$y_4 = \cos(x)^2 + \tan(x)^2;$

$\text{plot}(x, y_4)$

18|09|25

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

function [output args] = pattern (*)

$n = \text{input}('The no. of rows you want.\n')$

for $i = 1 : n$

for $j = 1 : i$

$\text{fprintf}('*')$

end

$\text{fprintf}('\n')$

end

for $i = n-1 : -1 : 1$

for $j = 1 : i$

$\text{fprintf}('*')$

end

$\text{fprintf}('\n')$

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 $\frac{\sum x}{\sum y}$

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);

Date in dd-mm-yy

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

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$$c = c + * (i) + Y(i)$$

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 : $x^3 + 4x^2 - 10 = 0$

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

$$gx = @ (x) 0.5 * sqrt (10 - x.^3) ;$$

$$X = 0.1 ;$$

$$e = 0.00001 ;$$

$$x2 = gx (x1)$$

while abs (fx (x2)) > e

$$x1 = x2 ;$$

$$x2 = gx (x1) ;$$

end

printf ("The solution is %f ; x2);

Output

The solution is 1.865230

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

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

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

plot(x, y1)

hold on

$y_2 = \sin(x);$

plot(x, y2)

hold on

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

plot(x, y3)

hold on

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

plot(x, y4)