Malik Hafeez

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Q.No.1

%find the value of trignometric function at x=pi/2

%using subs command cos(x),sin(x),tan(x)

Ans;

```
clc
clear all
syms x
a=cos(x)
b=sin(x)
c=tan(x)
A=subs(a,x,pi/2)
B=subs(b,x,pi/2)
C=subs(c,x,pi/2)
```

Q.No.2

%find the value of trignometric function at x=pi/2

%using sym command cos(x),sin(x),tan(x)

Ans;

```
clc
clear all
syms x
A=cos(sym(pi/2))
B=sin(sym(pi/2))
C=tan(sym(pi/2))
```

Q.No.3

%find the value of following using subs comman

%u(x,y)=2x+xy^2+3y at x=5 and f(x)=sin(x) at x=pi/2

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Ans;

```
clc

clear all

syms x y

u(x,y)=2*x+x*y^2+3*y

f(x)=sin(x)

U=subs(u(x,y),x,5)

F=subs(f(x),x,pi/2)
```

Q.No.4

```
%find the value of following polynomial at x=2 using  subs comman

%p(x,y)=x^2+3y^2x+10 and u(x)=x^3+4x+10
```

Ans;

```
clc

clear all

syms x y

p(x,y)=x^2+3*y^2*x+10

u(x)=x^3+4*x+10

P=subs(p(x,y),x,2)

U=subs(u(x),x,2)
```

Q.No.5

```
%find the solution of following equation

% x^2-y=2 and y-2x=5
```

Ans;

```
clc

clear all

syms x y

[x,y]=solve(x^2-y-2,y-2*x-5)
```

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Q.No.6

%find the solution of following equation

% 2x^3+x^2+3x+4=0

Ans;

```
clc
clear all
syms x
u=2*x^3+x^2+3*x+4
A=solve(u)
```

Q.No.7

%solve by solve command 2x+7y=3 ,3x^2+2y=1.

%Also plot graph for 3x^2+2y=1,Name it parabola

%give xlabel and y-label also.

Ans;

```
clc
clear all
syms x y
u=2*x+7*y-3
v=3*x^2+2*y-1
[U,V]=solve(u,v)
ezplot(v,[-2,2])
xlabel('x-axis')
ylabel('y-axis')
title('parabola')
```

Q.No.8

%Plot the graph of e^(-x) and Sin(x)

%on the interval [0, 8] using plot, hold on and hold off commands.

%Label the horizontal axis with x and vertical axis with y.

%Finally gives the title “Multiple Graphs”.

Ans;

```
clc
clear all
syms x
x=0:0.01:8
f=exp(-x)
g=sin(x)
Plot(x,f)
hold on
plot(x,g)
hold off
xlabel(‘x’)
ylabel(‘y’)
title(‘Multiple Graphs’)
```

Q.No.9

%Plot the graph of e^(-x) and Sin(x)

%on the interval [0, 8] using ezplot, hold on and hold off commands.

%Label the horizontal axis with x and vertical axis with y.

%Finally gives the title “Multiple Graphs”.

Ans;

```
clc
clear all
syms x
f=exp(-x)
g=sin(x)
```

```
ezplot(f,[0,8])
hold on
ezplot(g,[0,8])
hold off
xlabel('x')
ylabel('y')
title('Multiple Graphs')
```

Q.No.10

```
%Plot the parametric graph of the circle with center at (0; 0), radius 1, and with

%increment of 0:01 in the domain set. Label the horizontal axis with x and vertical axis with y.

%Make the shape of the graph square. Keeps the title of the graph "Parametric plot of the

%circle"
```

Ans;

```
clc
clear all
t=0:0.01:1;
plot(cos(2*pi*t),sin(2*pi*t))
xlabel('x')
ylabel('y')
title('parametric plot of the curcle')
axis ('square')
```

Q.No.11

```
%Plot the contour plots of the expression x2 + y2 using meshgrid and contour commands.
%Label the horizontal axis with x and vertical axis with y.
%Make the shape of the graph square.
```

%Keeps the title of the graph “Contour plotting of squares”.”

Ans;

```
clc
clear all
x=-2:0.01:2;
y=-2:0.01:2;
[X,Y]=meshgrid (x,y);
z=X.^2+Y.^2;
Contour(X,Y,z)
xlabel(‘x’)
ylabel(‘y’)
title(‘contour plotting of squares’)
axis (‘square’)
```

Q.No.12

%Plot the graph of x^3+x^2+4 on the interval -2, 2] using ezplot

%Label the horizontal axis with x and vertical axis with y.

%Finally gives the title “x^3+x^2+4”.

Ans;

```
clc
clear all
syms x
A=x^3+x^2+4
ezplot(A,[-2,2])
xlabel(‘x’)
ylabel(‘y’)
title(‘x^3+x^2+4’)
axis (‘square’)
```

Q.No.13

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%Plot the graph of the function sin(x) + cos(x) on the interval [0; 1], using plot command.

%Label the horizontal axis with x and vertical axis with y.

%Make the shape of the graph square.

%Keeps the title of the graph “The Graph of sin(x) + cos(x)”.

%Keeps the layout of the graph as grid.”

Ans;

```
clc
clear all
x=0:0.01:1;
y=sin(x)+cos(x)
plot(x,y)
xlabel('x')
ylabel('y')
title('The graph of sin(x) + cos(x)')
axis ('square')
grid on
```

Q.No.14

%Plot the multiple curves of the functions sin(x) + cos(x) and e-x + x2

%on the interval [0; 4], using ezplot command.

%Label the horizontal axis with x and vertical axis with y.

%Make the shape of the graph square.

%Keeps the title of the graph “The Graph of Multiple curves using ezplot command “.

%Keeps the layout of the graph as grid.

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Ans;

```
clc
clear all
syms x
f=sin(x)+cos(x)
g=exp(-x)+x^2
ezplot(f,[0,4])
hold on
ezplot(g,[0,4])
hold off
xlabel('x')
ylabel('y')
title('The graph of multiple curves using ezplot command ')
axis ('square')
grid on
```

Q.No.15

%Plot the contour plots of the circles x2+y2 of radius 1,2,?2,?3

%Label the horizontal axis with x and vertical axis with y.

%Make the shapes of the graph square.

%Keeps the title of the graph "Contour Plots of Circles".

%Keeps the layout of the graph grid.

Ans;

```
clc
clear all
syms x
x=-2:0.1:2;
y=-2:0.1:2;
[X,Y]=meshgrid (x,y);
```

```
f=X.^2+Y.^2-1;
g=X.^2+Y.^2-4;
m=X.^2+Y.^2-2;
n=X.^2+Y.^2-3;
contour(X,Y,f)
contour(X,Y,g)
contour(X,Y,m)
contour(X,Y,n)
xlabel('x')
ylabel('y')
title('contour plot of circles ')
axis ('square')
grid on
```

Q.No.16

%Plot the graph of sin(x)+cos(x) and exp(-x)+x^2

%on the interval [0, 4] using plot command and without use of hold on and hold off

%commands.

%Label the horizontal axis with x and vertical axis with y.

%Finally gives the title "The Graph of Multiple Curves using plot command".

%Keeps the layout of the graph as grid.

Ans;

```
clc
clear all
```

```
x=0:0.1:4;
f=sin(x)+cos(x);
g=exp(-x)+x.^2
plot(x,f)
hold on
plot(x,g)
hold off
xlabel('x')
ylabel('y')
title('The graph of multiple curves using plot command ')
axis ('square')
grid on
```

Q.No.17

%Compute the values of sin(x) at x = 0; 1, and 2 using for loop.

Ans;

```
clc
clear all
for i=0:1:2
   sin(i)
end
```

Q.No.18

%Solve: f(x,y)=xy^2+2x+4=0 , f(x,y)=3x^2y+2xy^2+4x at x=5

%f(x)=Sin x at x=5

Ans;

```
clc
clear all
syms x y
f1=x*y^2+2*x+4
```

```
f2=3*x^2*y+2*x*y^2+4*x

f=solve(f1,f2)

F=subs(f,x,5)

u=sin(x)

B=subs(u,x,5)
```

Q.No.19

```
%Plot the contour plots of the Sin(x) +Cos(y)

%where x range from -2? To 2?, y range from 0 to 4?.

%Label the horizontal axis with x and vertical axis with y.

%Keep the title of the graph “Contour Plot of Sin(X)+Cos(Y)
```

Ans;

```
clc

clear all

y=-2*pi:pi/100:2*pi;

y=0:pi/100:4*pi

[X,Y]=meshgrid (x,y);

Z=sin(X)+cos(Y)

contour(X,Y,Z)

xlabel(‘x’)

ylabel(‘y’)

title(‘contour plot of sin(x)+cos(x)’)
```

Q.No.20

```
%Plto the contour plots of the expression z=x*exp(-x^2-y^2)


%range is -2<x<2 and -3<y<3


%Label the horizontal axis with x and vertical axis with y
```

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%keep the title of graph contour plots of the expression

Ans;

```
clc
clear all
x=-2:0.1:2;
y=-3:0.1:3;
[X,Y]=meshgrid (x,y);
Z=x.*exp(-X.^2-Y.^2)
contour(X,Y,Z)
xlabel('x')
ylabel('y')
title('contour plot of z=x*exp(-x^2-y^2) ')
grid on
```

Q.No.21

Plot f(x,y)=sin(x)+cos(y) at [-5,5] by using contour plot

Ans

```
clear all

clc

x=-5:0.1:5;

y=-5:0.1:5;

[X,Y]=meshgrid(x,y)
```

Z=sin(X)+cos(Y)

Contour(X,Y,Z)

Q.No.22

% display a number if it is positive or display a number if it is negative.

Ans

```
x=input('enter a number: ')

    if x > 0

 disp('this number is positive')

elseif x < 0

 disp('this number is negative')

else

 disp('zero')

end
```

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Q.No.23

%using if and else command show that -13 is negative number

Ans

```
clear all
clc

Number=input('enter a number')

If Number > 0

 disp('this number is positive')

else

 disp('this number is negative')

end
```

Q.No.24

% plot the function x^2-y^4=0 on interval [-pi,pi]

Ans

```
clear all
```

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clc

syms x y

f=@(x,y)x.^2-y.^4

ezplot(f,[-pi,pi])

Q.No.25

%print the today temperature and the day.

Ans

Day='wednesday';weather='sunny';temp=75

fprintf('the weather today is %s and the temperature is %i /n',weather,temp)

Q.No.26

%use of menu command

Ans

answer=menu('what day is

today','monday','tuesday','wednesday','thursday','friday','weekend')

if answer==1

```
 disp('today is  monday');

elseif answer==2

 disp('today is tuesday');

elseif anser==3

 disp('today is wednesday');

elseif answer==4

 disp('today is thursday);

else

 disp('today is not weekend');

end
```

Q.No.27

%disp your name and age

Ans

```
name=input('enter the name: ','s')

age=input('enter the age: ')
```

```
if age>20
     disp(‘my age is 22’)
else
    disp(‘my age is not 22’)
end
```