بسم الله الرحمن الرحیم

CA 1

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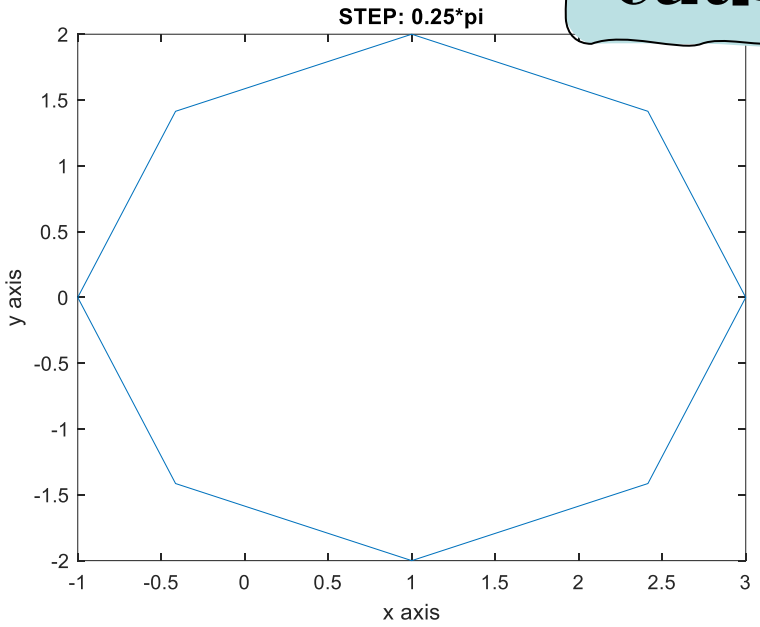
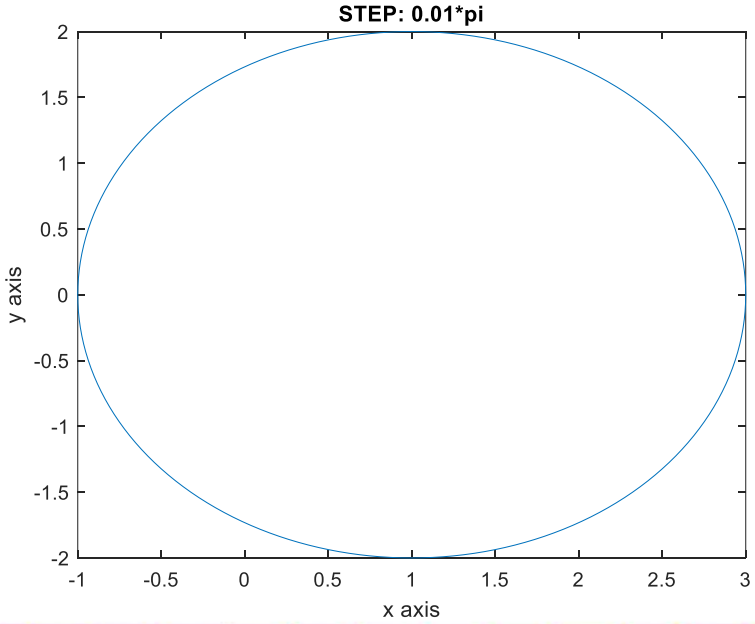
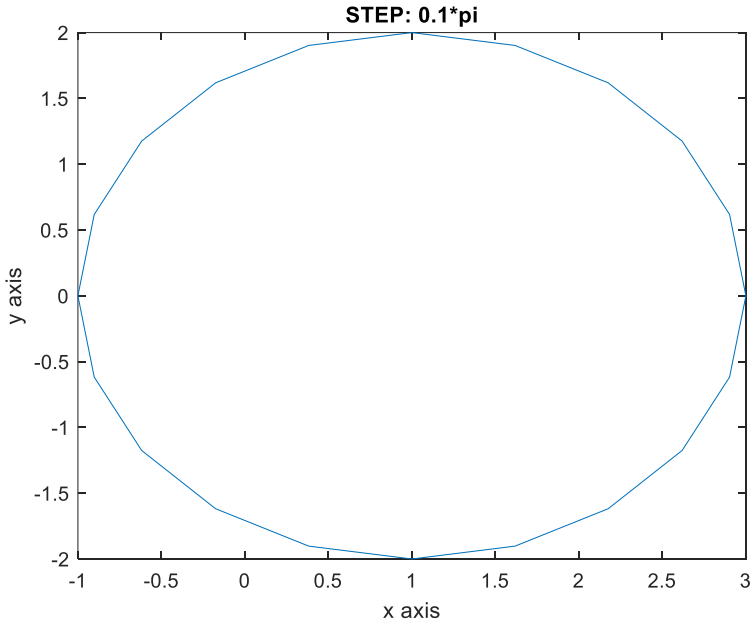
Code :

```
close all ; clear all  ; clc

t1= 0:0.25*pi:2*pi;
t2= 0:0.1*pi:2*pi;
t3= 0:0.01*pi:2*pi;

syms t
X(t)=2*cos(t)+1;
Y(t)=2*sin(t);
%.................................

plot(X(t1),Y(t1));
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.25*pi');
figure;
%.................................

plot(X(t2),Y(t2));
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.1*pi');
figure;
%.................................

plot(X(t3),Y(t3));
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.01*pi');

```

output :







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Code :

```
close all ; clear all  ; clc

t1= 0:0.25*pi:2*pi;
t2= 0:0.1*pi:2*pi;
t3= 0:0.01*pi:2*pi;

syms t
X(t)=2*cos(t)+1;
Y(t)=2*sin(t);
%.................................
subplot(1,3,1)
plot(X(t1),Y(t1));
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.25*pi');
grid on
%.................................
subplot(1,3,2)
plot(X(t2),Y(t2),'r');
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.1*pi');
grid on
%.................................
subplot(1,3,3)
plot(X(t3),Y(t3),'m');
xlabel('x axis');
ylabel('y axis');
title('STEP: 0.01*pi');
grid on
```

output :

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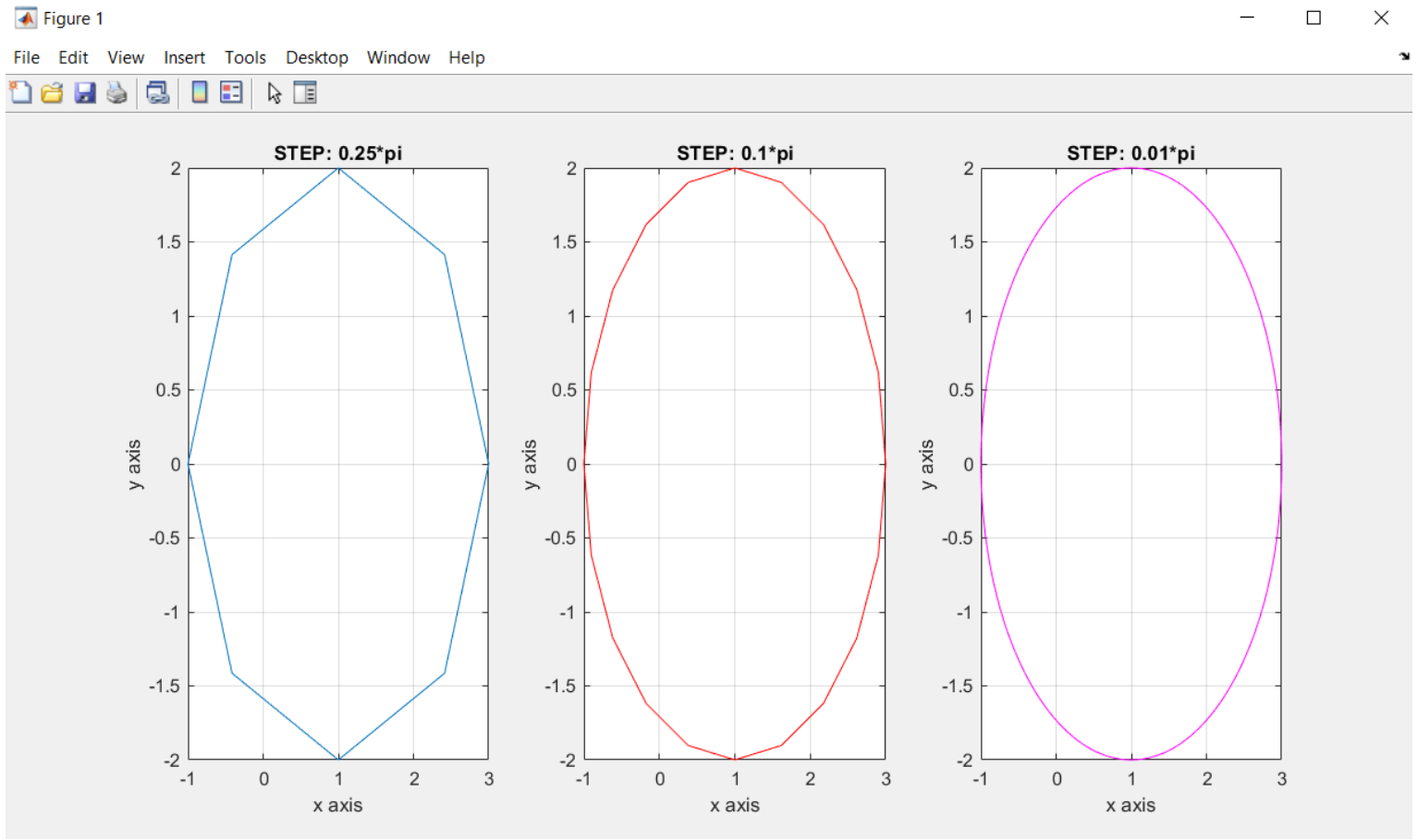

Code :

```
1   close all ; clear all  ; clc
2
3   t= 0:0.1:2*pi;
4
5   X=2*cos(t)+1;
6   Y=2*sin(t);
7
8   plot(t,X);
9   hold on;
10  plot(t,Y);
11  xlabel('x');
12  ylabel('y');
13  legend('X graph','Y graph');
14  title('any title u want !');
15  grid on;
```

output :

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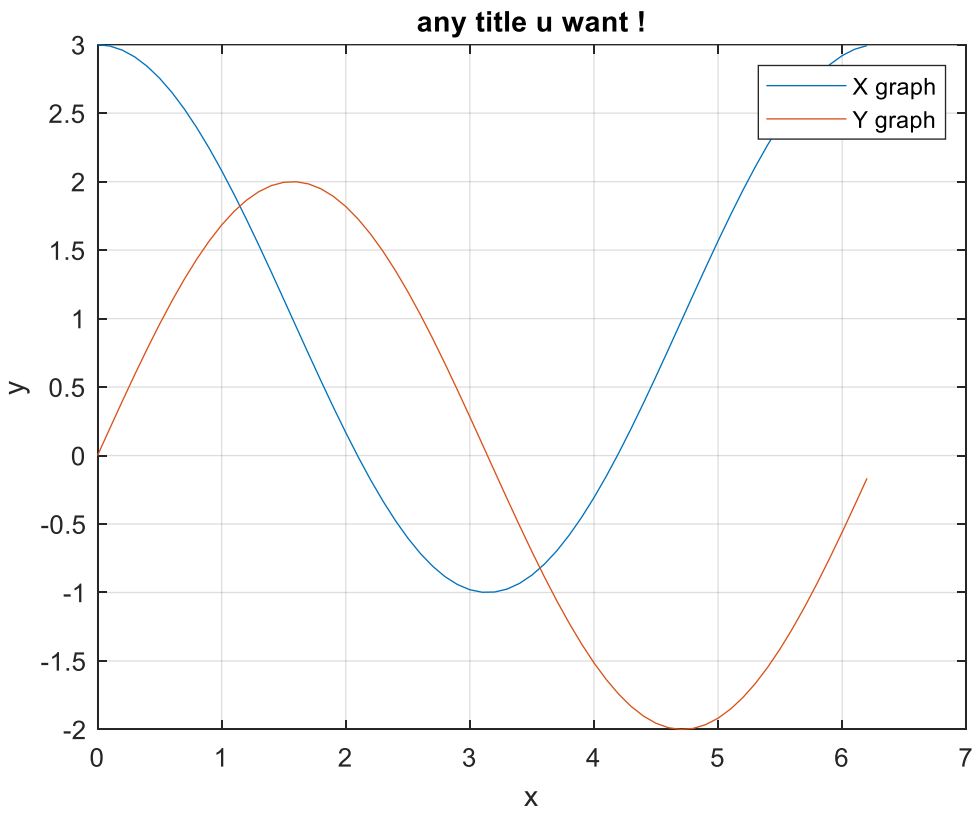
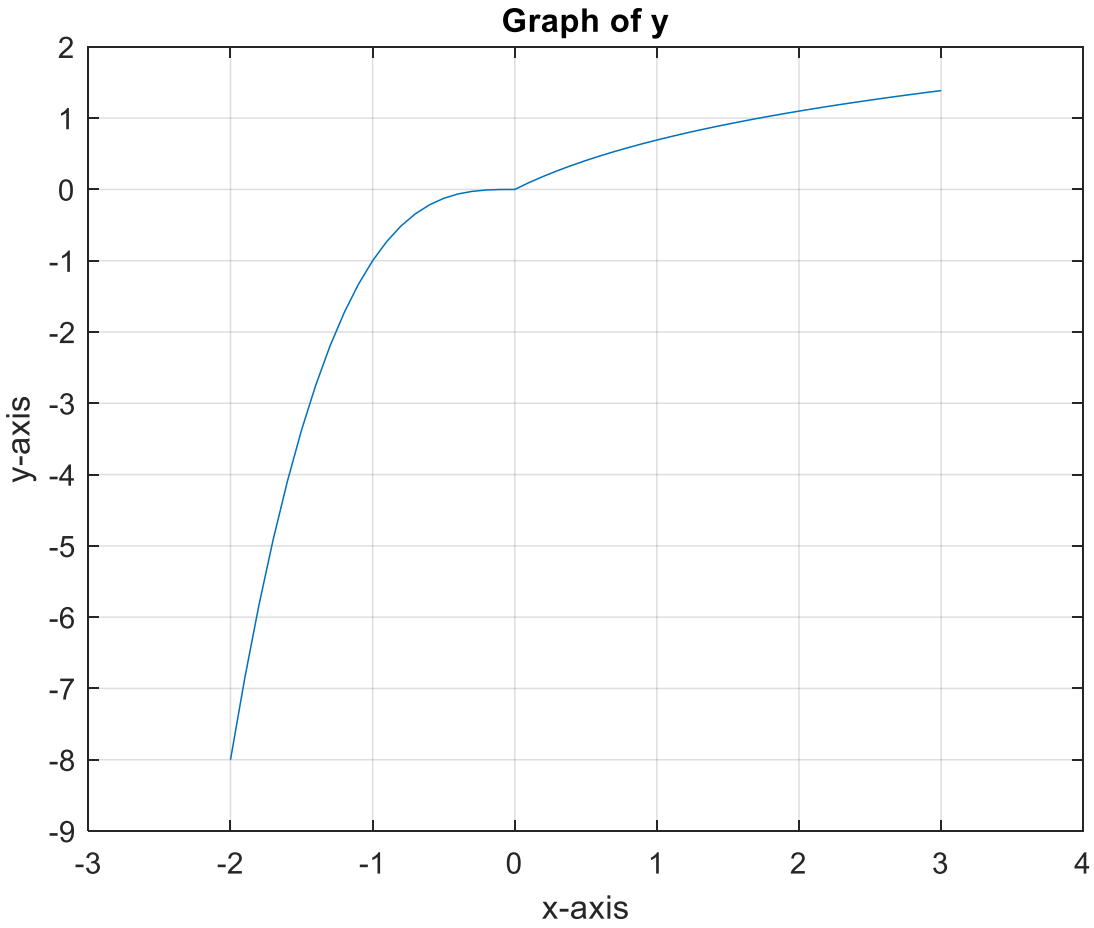


Code :

```
close all ; clear all ; clc ;

    syms x
    f(x)=piecewise(-2<=x<=0,x^3,...
        3>=x>=0,log(x+1));

    X=-5:0.1:5;
   % X=linspace(-5,5,200);

    plot(X,f(X))
    ylabel('y-axis');
    xlabel('x-axis');
    axis([-3,4,-9,2]);
    title('Graph of y');
    grid on
```

Continue operator

output :



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Code :

```
close all ; clear all ; clc ;

% for example m=6 , n=7 :

m=input('please enter count of rows : ');
n=input('please enter count of coloumns : ');
X = Mat_Generator(m,n)

```

function :

```
function [a] = Mat_Generator(m,n)

for i=[1:m]
    for j=[1:n]
        if mod(i*j,2)==0
            a(i,j)=max(i,j);

        else
            a(i,j)=i.^j;
        end
    end
end

end
```

output :

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Command Window

```
please enter count of rows : 6
please enter count of coloumns : 7

X =

     1     2     1     4     1     6     1
     2     2     3     4     5     6     7
     3     3    27     4   243     6  2187
     4     4     4     4     5     6     7
     5     5   125     5  3125     6 78125
     6     6     6     6     6     6     7
```

Code :

output :

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```
1   close all ; clear all ; clc ;
2
3
4   syms x
5   f(x)=x.^2;
6
7   X=linspace(0,3,100);
8   delta_X=3/100;
9
10  ans_of_integral= sum(f(X))*delta_X
```

Command Window

```
ans_of_integral =

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```

≈ 9.0454545…