code3.m | bisfn.m

```
x=1:0.1:100;
y=besselj(0,x);

figure(1)
plot(x,y);
hold on;

title('Bessel function','fontsize',14)
ylabel(' Y(x)','fontsize',12)
xlabel('x ','fontsize',12)



f=@(x) besselj(0,x);
soln =[];

a = 0;
b = 5;
n = 1000;
tol = 10^-8;
soln =[];

 for k = 1:10000
      [data,r] = bisfn(f,a,b,n,tol);
        a = b;
```

code3.m | bisfn.m

```
        a = b;
        b = b+1;
      while(f(a) * f(b) >=0)
        b = b+1;
      end
%       a = b - 2*0.05;
      a = b-1;

       soln = [soln,data];

 end
w = 1:1:length(soln);
p = polyfit(w,soln,1);

figure(2)
plot(w,soln)
title('Roots of the bessel function','fontsize',14)
ylabel(' Root','fontsize',12)
xlabel('Number ','fontsize',12)

publish("code3.m","format","pdf")
```