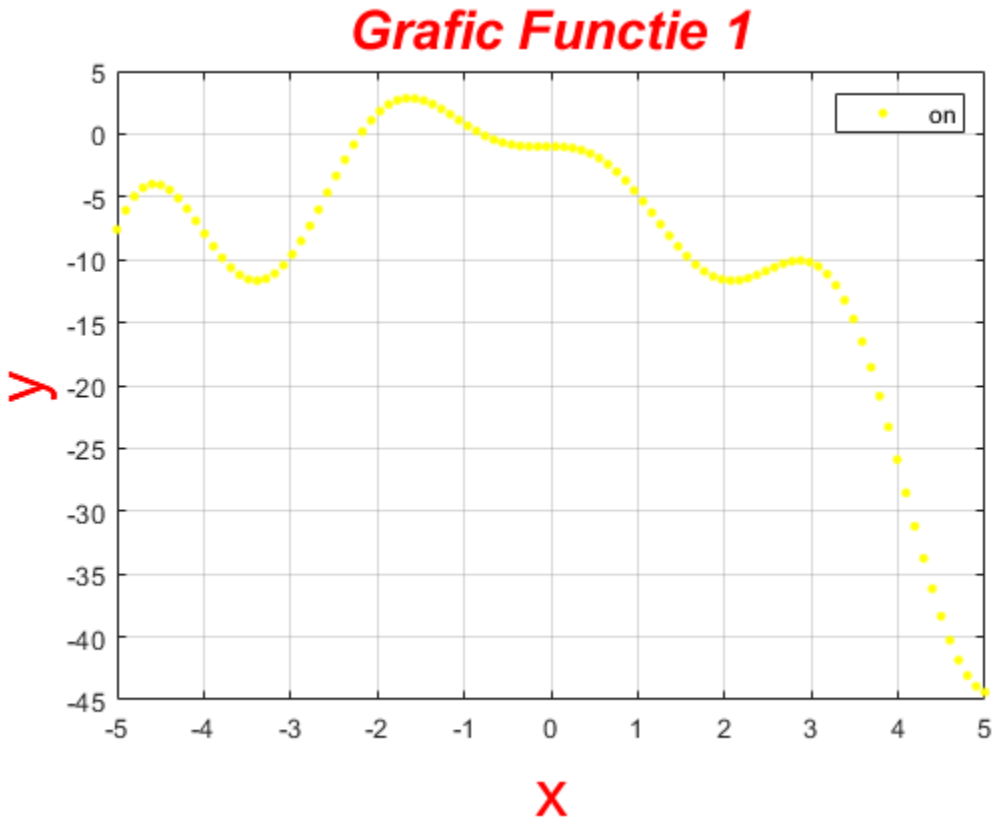
Table of Contents

A

```
a=-5;
b=5;
x=linspace(a,b,100);
y=(2.*x.*cos(2.*x))-((x+1).^2);
plot(x,y,'.r', 'linewidth',3,'MarkerEdgeColor','y','MarkerFaceColor','g','MarkerSi
grid on;
hold on;
legend on;
title ('Grafic Functie
 1','FontSize',20,'FontAngle','Italic','Color','r');
xlabel('x','FontSize',25,'Color','r')
ylabel('y','FontSize',25,'Color','r')
figure();
```



B

```
type('MetSecantei')


function [xaprox]=MetSecantei(f,a,b,x0,x1,E)
x(1)=x0;
x(2)=x1;
i=2;
if(f(a)*f(b)<0)
while (abs(x(i)-x(i-1))/abs(x(i-1)))>E
x(i+1)=x(i)-f(x(i))*(x(i)-x(i-1))/(f(x(i))-f(x(i-1)));
if (f(x(i+1))~=0)
    xaprox=x(i+1);
    i=i+1;
        break;
    else
        i=i+1;
    end
end
end

end
```

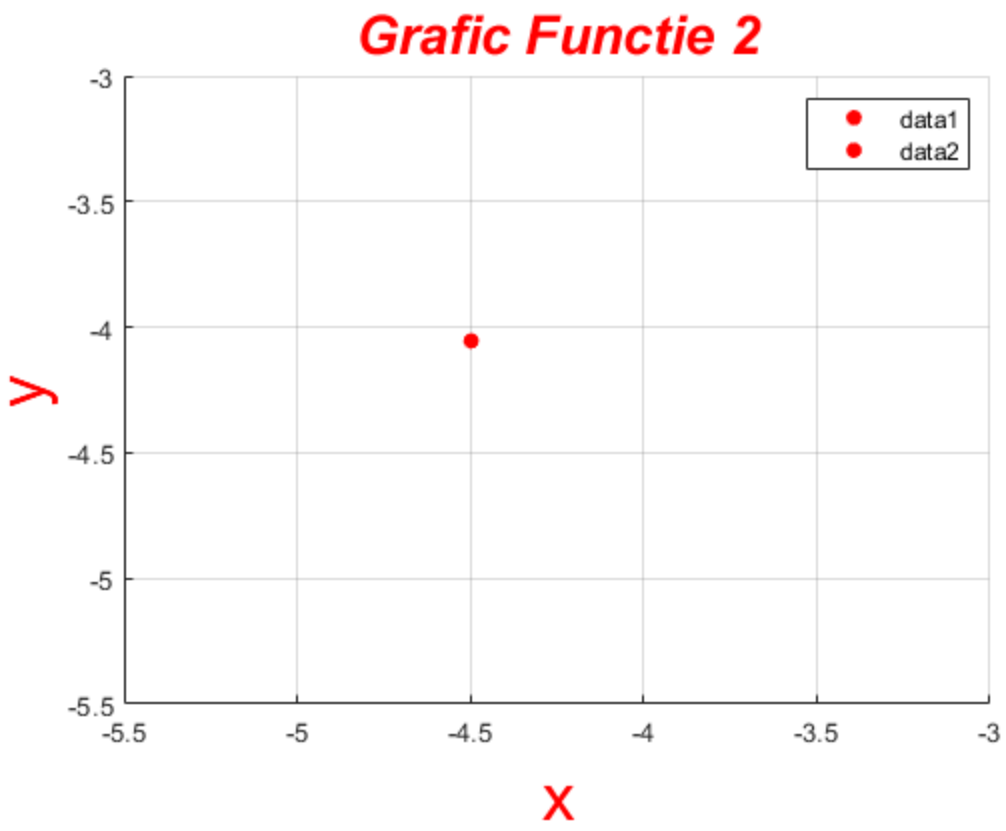
C

```
type('MetPozFalse')


function [xaprox]=MetPozFalse(f,a,b,E)
if(f(a)*f(b)<0)
OK=1;
i=1;
a(i)=a;
b(i)=b;
x(i)=(a(i)*f(b(i))-b(i)*f(a(i)))/(f(b(i))-f(a(i)));
while (OK==1)
if (f(a(i))*f(x(i))==0)
    a(i+1)=a(i);
    b(i+1)=b(i);
    x(i+1)=x(i);
elseif (f(a(i))*f(x(i))<0)
    a(i+1)=a(i);
    b(i+1)=x(i);
    x(i+1)=(a(i+1)*f(b(i+1))-b(i+1)*f(a(i+1)))/(f(b(i+1))-f(a(i+1)));
elseif (f(a(i))*f(x(i))>0)
    a(i+1)=x(i);
    b(i+1)=b(i);
    x(i+1)=(a(i+1)*f(b(i+1))-b(i+1)*f(a(i+1)))/(f(b(i+1))-f(a(i+1)));
end
    if(abs(x(i+1))<E)
        xaprox=x(i+1);
        OK=0;
    else
        i=i+1;
end
end
end
end
```

D

```
f=@(x) (2.*x.*cos(2.*x))-((x+1).^2);
[Intervale,c]=cautInterv(f,a,b,100);
type('cautInterv')
for(i=1:c)

 xaprox1(i)=MetSecantei(f,Intervale(i,1),Intervale(i,2),x(1),x(2),0.001)
    hold on;

 plot(xaprox1,f(xaprox1),'.', 'linewidth',3,'MarkerEdgeColor','r','MarkerFaceColor
    grid on;
end
legend;
```

```
title ('Grafic Functie
 2','FontSize',20,'FontAngle','Italic','Color','r');
xlabel('x','FontSize',25,'Color','r')
ylabel('y','FontSize',25,'Color','r')
figure();


function [Intervale,c]= cautInterv (f, a, b, N)
x=linspace(a,b,N+1);
c=0;
for i=1:N
    if(f(x(i))*f(x(i+1))<0)
        c=c+1;
        Intervale(c,1)=x(i);
        Intervale(c,2)=x(i+1);
    end
end
end

xaprox1 =

   -4.4979   -4.4979


xaprox1 =

   -4.4979   -4.4979
```


Grafic Functie 2
data1
data2
-3
-3.5
-4
-4.5
-5
-5.5
y
-5.5
-5
-4.5
-4
-3.5
-3
X

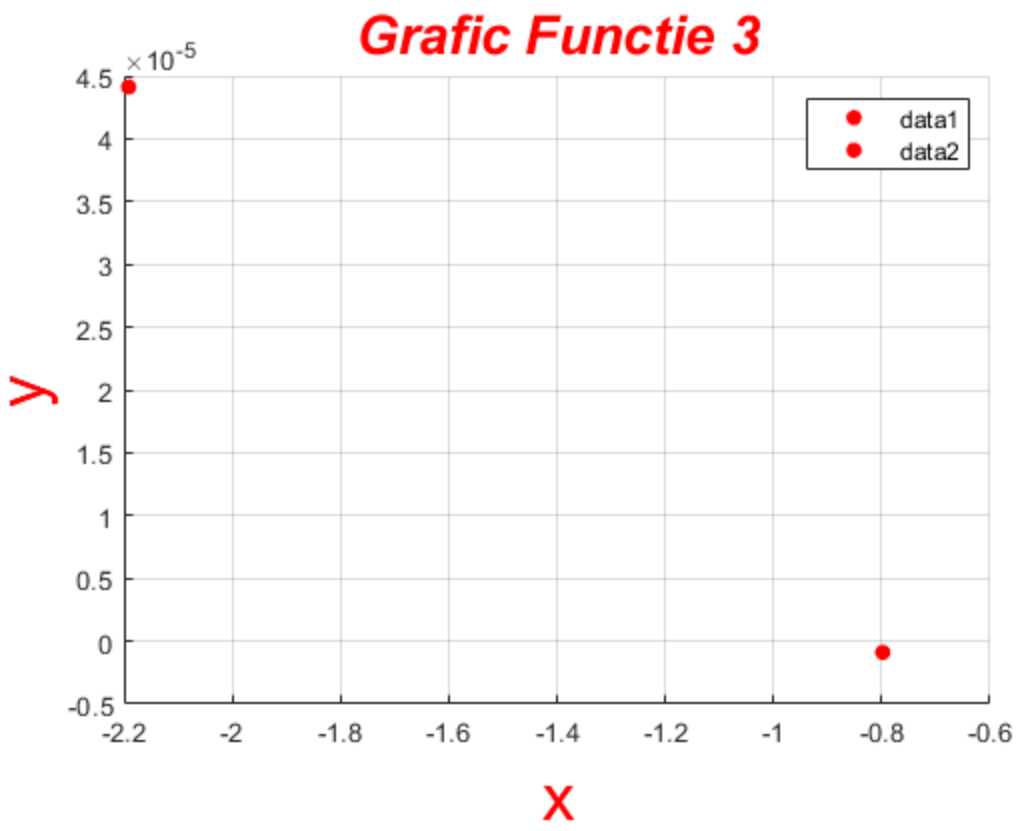
E

Deoarece xaprox2 da valorile (-2.1906,-0.7980) cu o eroare 10^(-3) programul dureaza prea mult pentru a-l rezolva. cu E=2.2 programul iese destul de rapid si face graficul.

```
f=@(x) (2.*x.*cos(2.*x))-((x+1).^2);
[Intervale,c]=cautInterv(f,a,b,100);
for(i=1:c)
    xaprox2(i)=MetPozFalse(f,Intervale(i,1),Intervale(i,2),2.2)
    hold on;

 plot(xaprox2,f(xaprox2),'.', 'linewidth',3,'MarkerEdgeColor','r','MarkerFaceColor
    grid on;
end
legend;
title ('Grafic Functie
 3','FontSize',20,'FontAngle','Italic','Color','r');
xlabel('x','FontSize',25,'Color','r')
ylabel('y','FontSize',25,'Color','r')
```

```
xaprox2 =

   -2.1913   -0.7982
```

```
xaprox2 =

   -2.1913   -0.7982
```



Published with MATLAB® R2019a