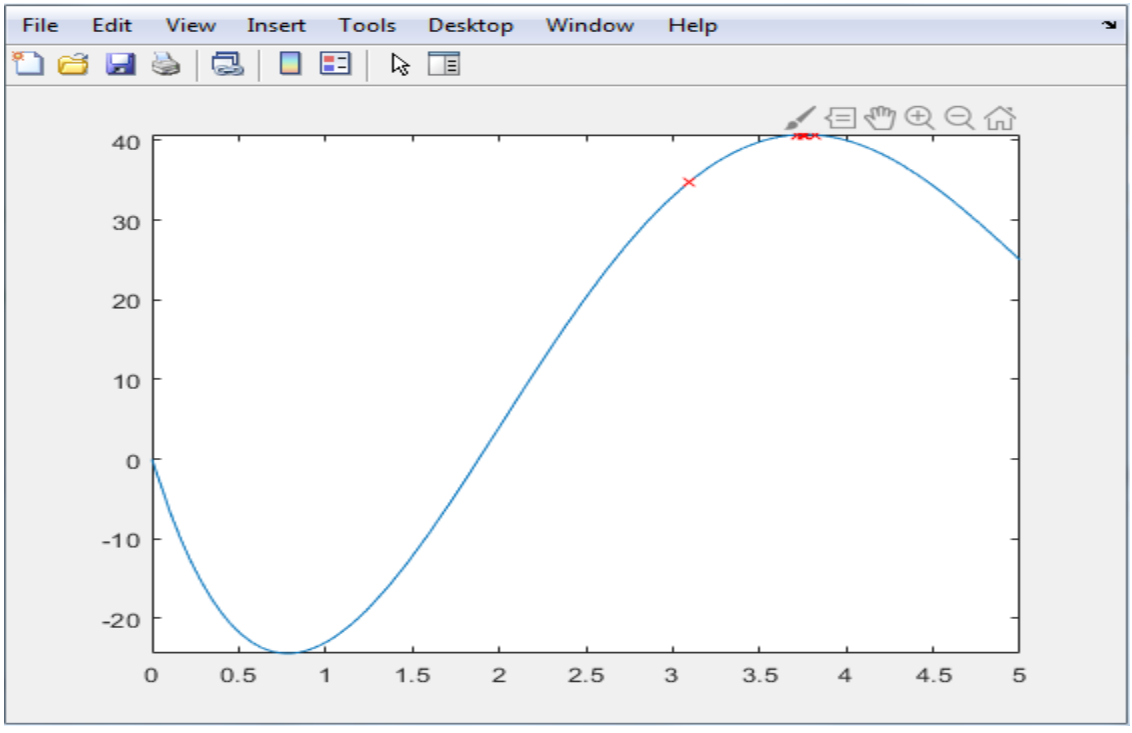
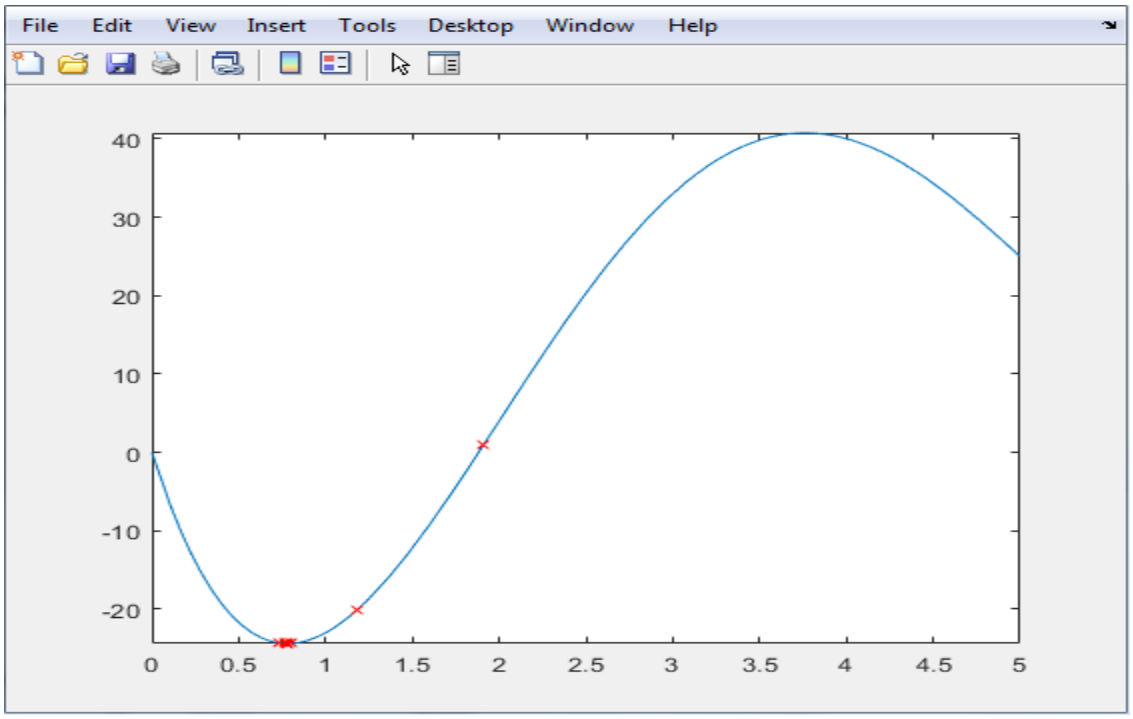
CODE

```
f =@(x)x.^4-14.*x.^3+60.*x.^2-70.*x; % function

eps = 1e-4
a=0; %limits
b=5;

fplot(f,[a,b])      % plot of function
hold on

k = (b-a)/eps; %The smallest Fibonacci number satisfying

for i=0:1:100

    if myfibonacci(i)>k
        n=i;
        n
        break
    end
end


t=0;

while (n>0)

c = a + (1-myfibonacci(n-1)/myfibonacci(n))*(b-a);
d = a + myfibonacci(n-1)/myfibonacci(n)*(b-a);


if (f(d)<f(c)) %change for min. point if (f(d)>=f(c))

   a = a;
   b = d;
   d = c;

else

   a = c;
   b = b;
   c = d;

end

plot(c,f(c),'gx')
hold on

plot(d,f(d),'rx')
hold on
```

```
n=n-1;

fprintf('-------------------------------------------------------------------\n')
fprintf('a           b              n    f(c)          f(d)\n')
fprintf('%.4e  %.4e     %d    %.4e   %.4e \n',a,b,n,f(c),f(d))

end

%% find fibonacci number
function t=myfibonacci(k)

x(1)=0;
x(2)=1;

    if(k==0)
    t = x(1)
    elseif (k==1)
    t = x(2)
    elseif (k>=2)
        for i=2:1:k
        x(i+1) = x(i)+x(i-1);
        t = x(i+1)
        end
    end
end
```

f = x^4-14*x.^3+60*x.^2-70*x




File Edit View Insert Tools Desktop Window Help
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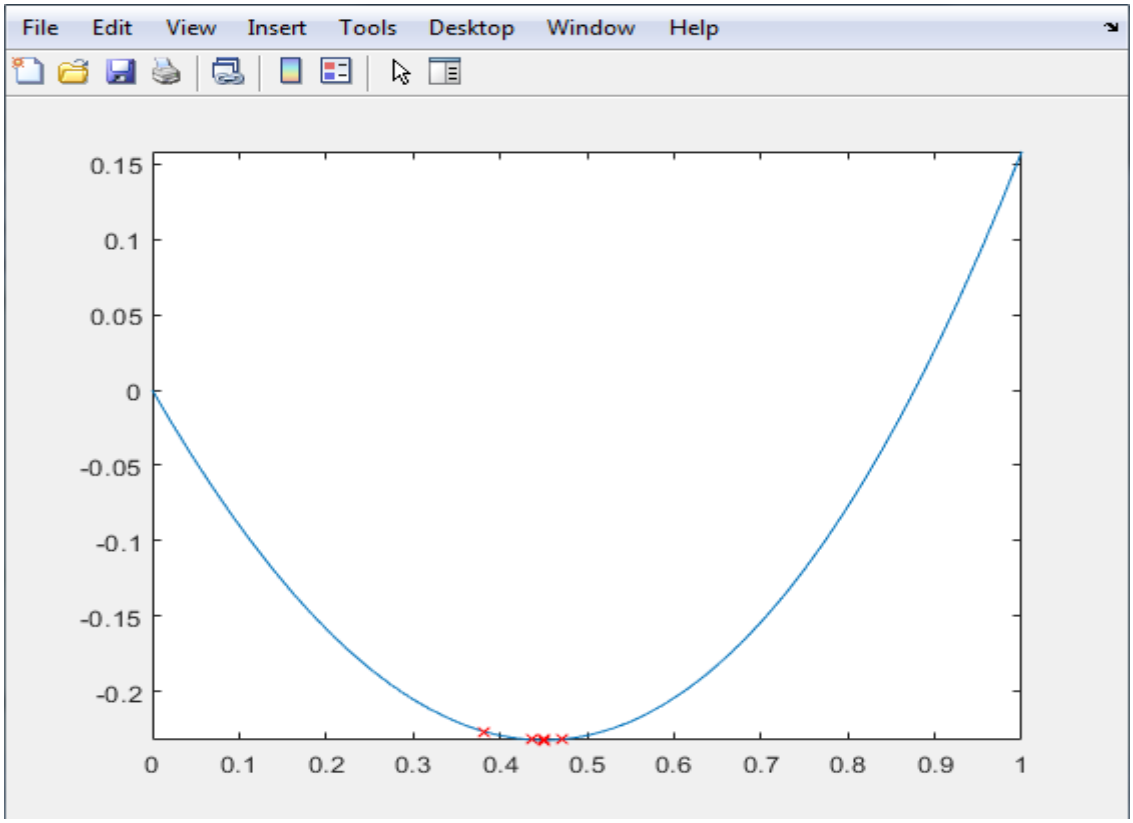
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5

f = x^2-sin(x)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0.1
0.05
0
-0.05
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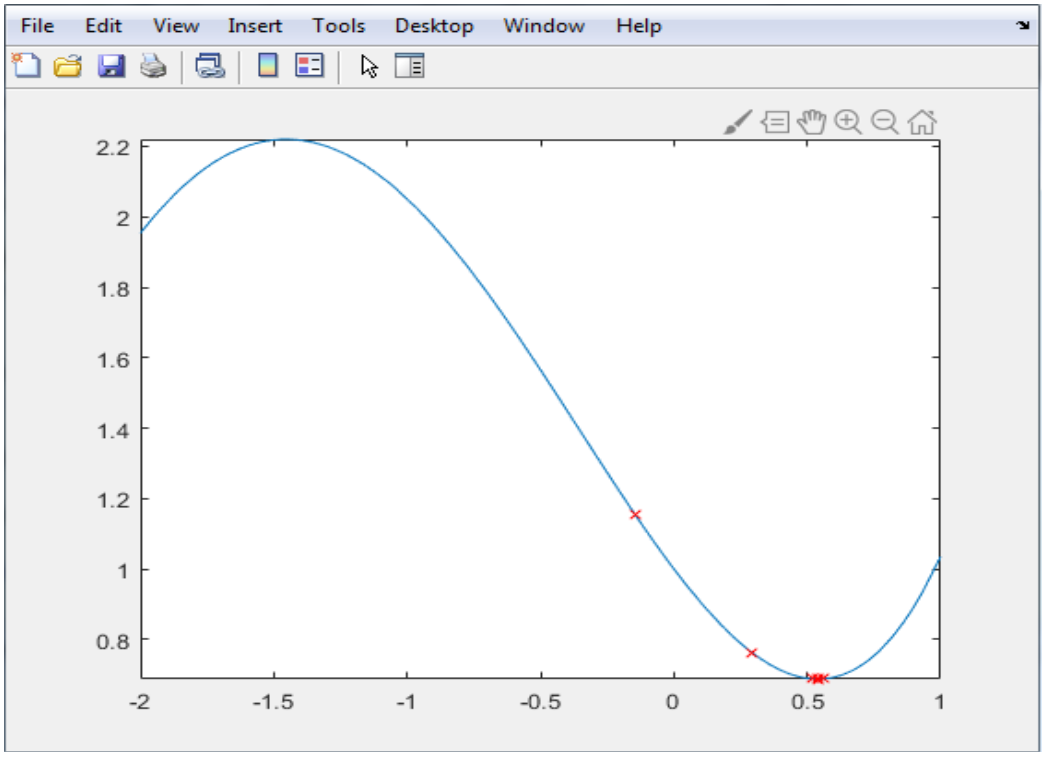
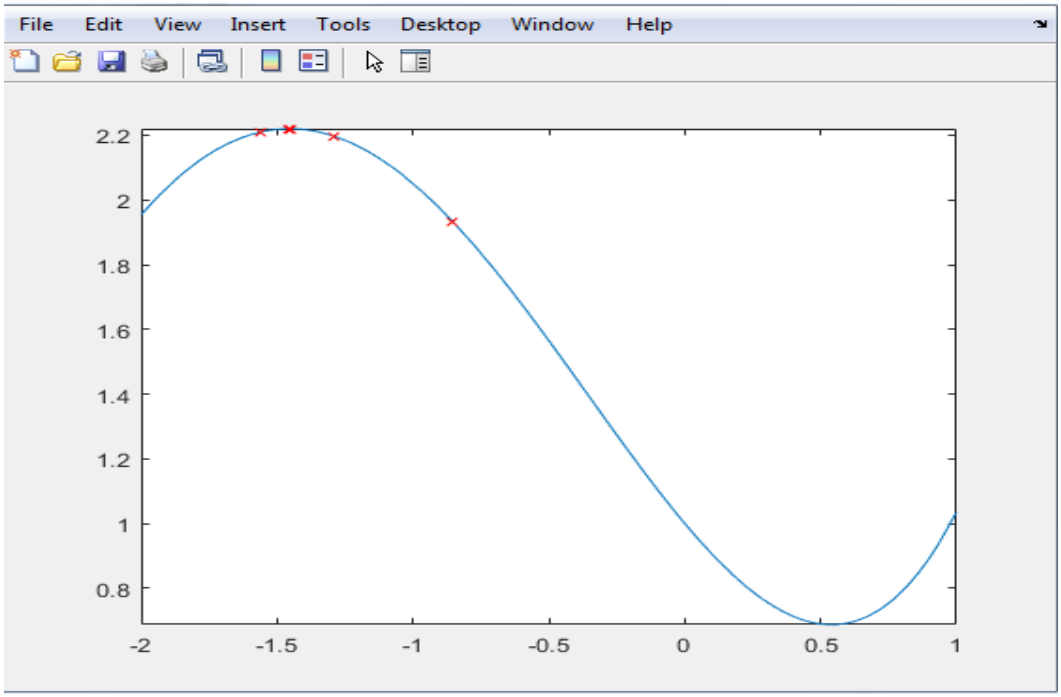
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1

f = exp(x)-2*sin(x)





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