

# Incremental-search code in C++

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Listing 1: Incremental-search algorithm in c++

```
1 #include <iostream>
2 #include <cmath>
3 using namespace std;
4
5 long double f(long double x){
6     long double y= sin(x);
7     return y;
8 }
9
10
11 int main(){
12     cout.precision(30);
13     cout << "Wirte x0, delta and iterations
14         separated by a space" << endl;
15     long double y1,x1,x0,delta,iter,y0;
16     cin >> x0 >> delta >> iter;
17     y0 = f(x0);
18     if (y0==0){
19         cout << "x0 is a root" << endl;
20     }else{
21         x1 = x0 + delta;
22         y1 = f(x1);
23         long double cont = 1;
24         while(y0*y1>0 and y1!=0 and cont <= iter){
25             x0 = x1;
26             y0 = y1;
27             x1 = x0 + delta;
28             y1 = f(x1);
29             cont++;
30         }
31         if(y1==0){
32             cout << x1 << " is a root" << endl;
33         }else{
```

```
34     if(y0 * y1 < 0){
35         cout << "There's a root between " << x0
36             << " and " << x1 << endl;
37     }else{
38         cout << "FAIL!" << endl;
39     }
40 }
41 }
42 return 0;
43 }
```