

```
1  #include <stdlib.h>
2  #include <math.h>
3  #include <stdio.h>
4
5  typedef double funzione(double);
```

```
6
7 double zero(funzione f, double a, double b, double eps)
8 {
9     double fa = f(a);
10    if(fa == 0) return a;
11    double fb = f(b);
12    if(fb == 0) return b;
13    if(fa * fb > 0) return NAN;
14    if(fa>0) {
15        double tmp = a;
16        a = b;
17        b = tmp;
18    }
19    while(fabs(b-a)>eps) {
20        double tmp = (b+a)/2;
21        fa = f(tmp);
22        if(fa == 0) return tmp;
23        if(fa>0) {
24            b = tmp;
25        } else {
26            a = tmp;
27        }
28    }
29    return (b+a)/2;
30 }
```

```
31
32 #define EPS 0.0000001
33
34 int main(int argc, char *argv[])
35 {
36     printf("%f\n", zero(sin, 3, 4, EPS));
37     printf("%f\n", zero(cos, 1, 2, EPS));
38     printf("%f\n", zero(exp, 1, 2, EPS));
39     return 0;
40 }
```

```
41
42  int * f1(int v)
43  {
44      int v1 = v;
45      return &v1;
46  }
47
48  int * f2(int v)
49  {
50      int *pt = malloc(sizeof(int));
51      *pt = v;
52      return pt;
53  }
54
```