

C++ code 11.6.12: Implementation of `findRoots()` → [GitLab](#)

```
2 template <typename FUNCTOR>
3 double findRoots(double v, double w, FUNCTOR &&g, double tol = 1.0E-6) {
4     double x = v; // approximate root
5     const double len = w - v;
6     constexpr static const int maxN = 1000;
7     double gv = g(v), gw = g(w);
8     // Ensure that function changes sign
9     assert(gv * gw <= 0);
10    for (int N = 0; (std::abs(w - v) > tol * len) && N < maxN; N++) {
11        x = (v + w) / 2.0;
12        const double gx = g(x);
13        if (gv * gx < 0.0) {
14            // Sign change in left half of [v,w]
15            w = x;
16            gw = gx;
17        } else {
18            // Sign change in right half of [v,w]
19            v = x;
20            gv = gx;
21        }
22    }
23    return x;
24 }
```