

C++11 code 9.5.23: Sub-problem (9-5.m): function `testStab()` → [GitLab](#)

```
2 double testStab() {
3     double maxUniformTimestep;
4     std::cout << "\n***** STABILITY EXPERIMENT "
5                 "*****"
6                 << std::endl;
7     unsigned int m_upper = 1100;
8     unsigned int m_lower = 1000;
9     unsigned int m = m_lower + (m_upper - m_lower) / 2;
10    while (m_upper - m_lower > 1) {
11        std::cout << "\nTesting symplectic method with m = " << m << std::endl;
12        // Catch exception thrown in case of blow-up
13        try {
14            wavePropSimulation(m);
15        } catch (const char *msg) {
16            // Blow-up detected!
17            std::cout << "Energy blows up!" << std::endl;
18            m_lower = m;
19            m = m_lower + (m_upper - m_lower) / 2;
20            continue;
21        }
22        // No blow-up
23        std::cout << "Energy is conserved" << std::endl;
24        m_upper = m;
25        m = m_lower + (m_upper - m_lower) / 2;
26    }
27    maxUniformTimestep = 10.0 / m_upper;
28    return maxUniformTimestep;
29 }
```