

C++ code 6.10.5: Sub-problem (6-10.a): A single timestep of the symplectic single-step method → [GITHUB](#)

```
2 void sympTimestep(double tau, Eigen::Vector2d &pq_j) {  
3     // Coefficients of the method  
4     const Eigen::Vector3d a{2. / 3., -2. / 3., 1.};  
5     const Eigen::Vector3d b{7. / 24., 3. / 4., -1. / 24.};  
6     // Single step  
7     for (int i = 0; i < 3; ++i) {  
8         pq_j(0) += tau * b(i) * pq_j(1);  
9         pq_j(1) -= tau * a(i) * pq_j(0);  
10    }  
11 }
```