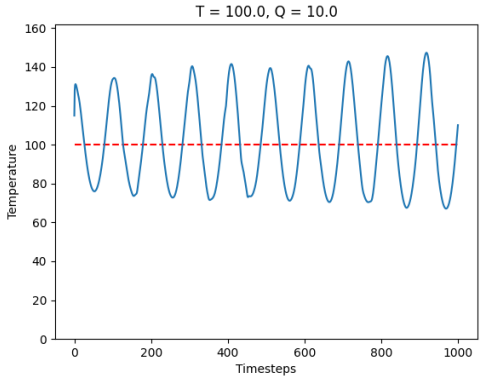
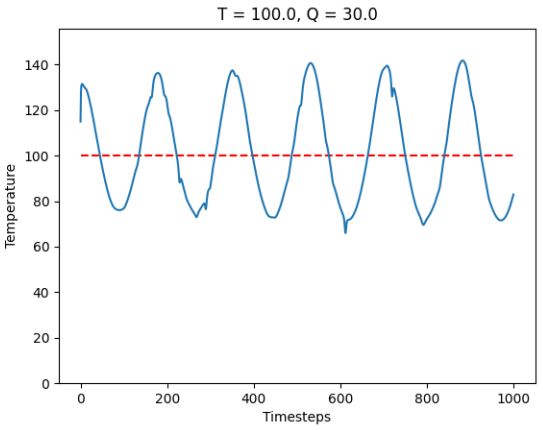
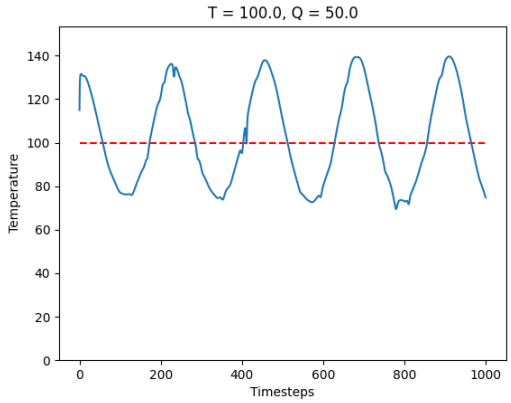
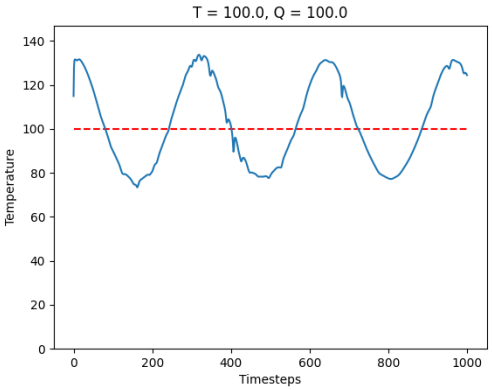
CSP Ex10

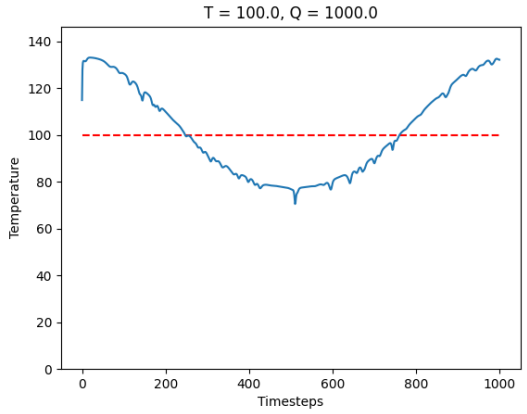
Task2:

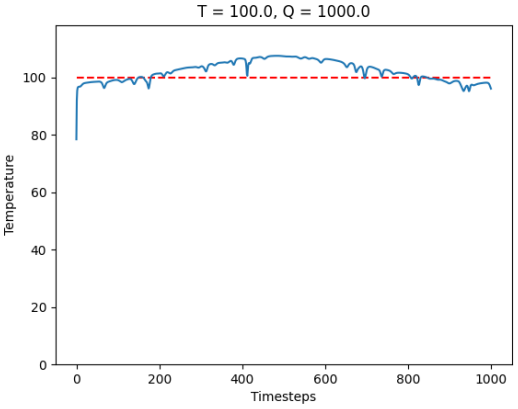






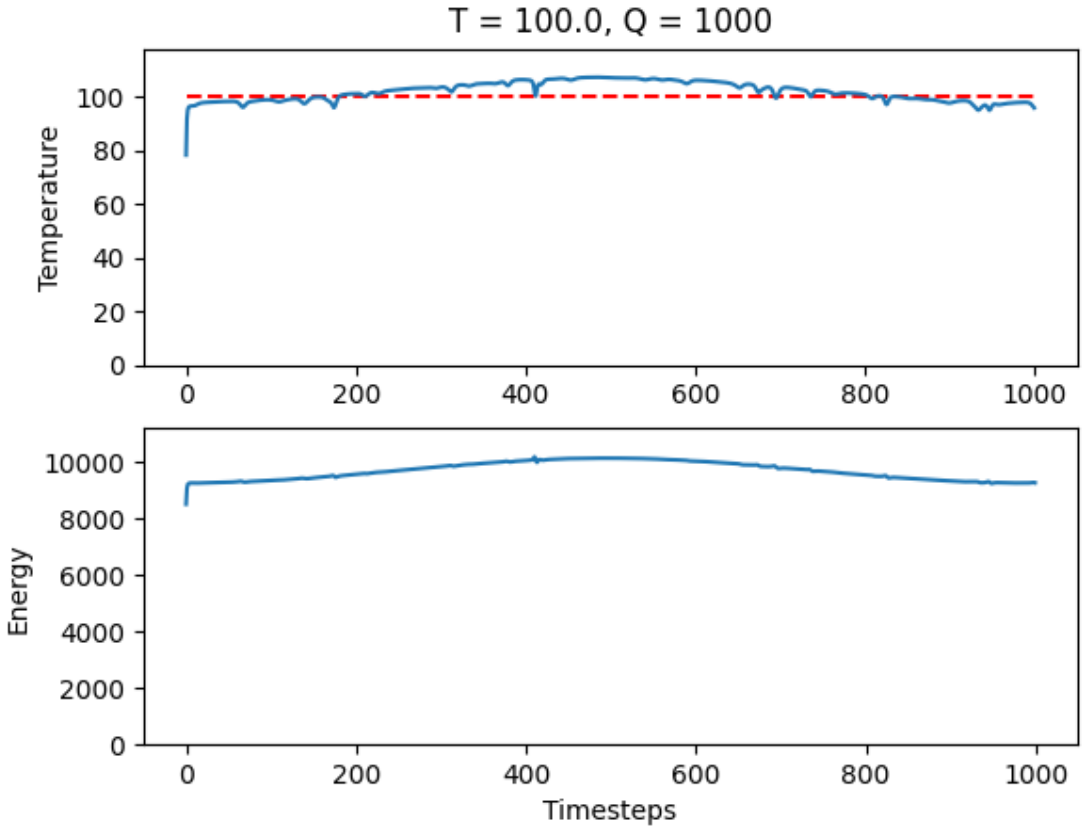






All simulations are set with the same initial condition of T=100, as well as the initial velocity was set to this temperature. Except the last plot uses a slightly smaller initial velocity to check the stability of the thermostat. The bigger Q the stronger the heat bath is. It also strangely periodically fluctuates around the desired temperature T=100. I think Q=1000 is a good compromise. Not too strong and not too weak.

Task3: Kinda expected to see the energy does the same thing as the temperature. Temperature is measured by the kinetic energy. It is just on a different scale.


T = 100.0, Q = 1000
Temperature
0
20
40
60
80
100
0
200
400
600
800
1000
Energy
0
2000
4000
6000
8000
10000
0
200
400
600
800
1000
Timesteps