

Exercise 1.4.6

The two ends of a uniform rod of length L are insulated. There is a constant source of thermal energy $Q_0 \neq 0$, and the temperature is initially $u(x, 0) = f(x)$.

- (a) Show mathematically that there does not exist any equilibrium temperature distribution. Briefly explain physically.
- (b) Calculate the total thermal energy in the entire rod.