

PHYSICS 3300 Partition Function Exercises

Calculate the partition function and the thermal energy for each of the systems described below.

1. A system has two accessible energy states $E_s = \{0, \epsilon_0\}$. In addition to finding the simplest expression for U , find the *low- T* limit of the thermal energy U .
2. A system has three accessible energy states $E_s = \{-\epsilon_0, 0, +\epsilon_0\}$. In addition to finding an expression for U , find the *low- T* limit of the thermal energy U .
3. Compare the thermal energy results for the two systems above and explain the similarities you find. What does the entropy function look like for each of these systems?