Written Assignment 6

A heat pump is used to maintain a house at 25 °C by extracting heat from the outside air on a day when the outside air temperature is 4 °C, the house is estimated to lose heat at a rate of 275,000 kJ/h.

(1) Given that the power consumed by the heat pump is 3.86 kW, what is the COP of the heat pump?

(2) Is the result in part (1) possible? Why or why not? If it is not possible, determine the **minimum** power input required for the heat pump (kW).