WEEK 1.

Question：
A short summary about the conductive heat transfer and solving the same exercise with L= 0.4 m, A= 20 m2, DeltaT= 25, and k=0.78 W/m K using both simple method and using the resistance concept.

Summary：
In steady operation, the rate of heat transfer through
the wall is constant.

The rate of heat conduction through a plane wall: is proportional to the average thermal conductivity, the wall area, and the temperature differencebut is inversely proportional to the wall thickness.

（1）

$$Q = KA\frac{\Delta \mathrm{T}}{L} = 0.78 \times 20 \times \frac{25}{0.4} = 975(J)$$

（2）

$$R_{\text{wall}} = \frac{L}{KA} = \frac{0.4}{0.78 \times 20} \approx 0.0256(℃/W)$$

$$Q = \frac{\Delta T}{R_{\text{wall}}} = \frac{25}{0.0256} \approx 976.6(J)$$