

A short summary about the conductive heat transfer and solving the same exercise with  $L = 0.4 \text{ m}$ ,  $A = 20 \text{ m}^2$ ,  $\Delta T = 25$ , and  $k = 0.78 \text{ W/m K}$  using both simple method and using the resistance concept

$$\dot{Q} = kA \frac{\Delta T}{L} = 0.78 * 20 * \frac{25}{0.4} = 975 \text{ W}$$

**OR**

$$R_{wall} = \frac{L}{kA} = \frac{0.4}{0.78 * 20} = 0.0256 \text{ } ^\circ\text{C/W}$$

$$\dot{Q} = \frac{\Delta T}{R_{wall}} = \frac{25}{0.0256} = 976.5 \text{ W}$$