WEEKLY SUBMISSION - TASK 01

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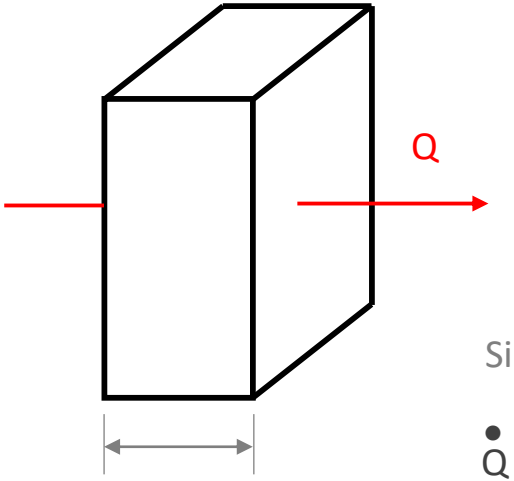
A short summary about the conductive heat transfer and solving the same exercise with L= 0.4 m, A= 20 m2, DeltaT= 25, and k=0.78 W/m K using both simple method and using the resistance concept



$A = 20m^2$
$\Delta T = 25°C$
$K = 0.78\ W/mK$ → temperature variation will be the same : 0.78W/mK = 0.78W/mC

Simple Method:

$$\dot{Q}_{cond} = KA\frac{\Delta T}{L}$$

$$\dot{Q}_{cond} = 0.78x20 \times \frac{25}{0.4}$$

$$\boxed{\dot{Q}_{cond} = 975\ W}$$

Resistance Concept:

$$R = \frac{L}{KA} \rightarrow R = \frac{0.4}{0.78x20} \rightarrow R = 0.02564$$

$$\dot{Q}_{cond} = \frac{\Delta T}{R} \rightarrow \dot{Q}_{cond} = \frac{25}{0.02564}$$

$$\boxed{\dot{Q}_{cond} \cong 975\ W}$$