SUMMARY

Conduction is the heat transfer through a wall, wich is proportional to its area, and to the difference of temperature that the wall have.

The formula to find it is:

$$\dot{Q} = kA\frac{\Delta T}{L}$$

Where:
k=conductivity
A= area (m2)
L= thickness of the wall (m)
$\Delta T =$ difference of the temperature outside and inside

EXERCISE

L= 0.4m
A= 20 m2
$\Delta T = 25$
k= 0.78 W/m

1. Simple method:

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

2. Resistant concept

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

$$\dot{Q} = \frac{\Delta T}{R_{Wall}} = \frac{25}{0.0256} = 976.56\ W$$