1.7-7 $A = 1m^2$

I $\dot{Q}_{convección} = \alpha \cdot A \cdot (\vartheta_{aint} - \vartheta_{pint}) = 20 \frac{W}{m^2 K} \cdot 1m^2 (20°C - \vartheta_{pint})$

II $\dot{Q}_{conducción} = \frac{\lambda \cdot A (\vartheta_{pint} - \vartheta_{pext})}{x} = \frac{0{,}2 \frac{W}{mK} \cdot 1m^2 (\vartheta_{pint} - \vartheta_{pext})}{0{,}2m}$

III $\dot{Q}_{convección} = 20 \frac{W}{m^2 K} \cdot 1m^2 (\vartheta_{pext} - 0°C)$

I' $\vartheta_{pint} = 20°C - \frac{\dot{Q}}{20 \frac{W}{K}}$

III' $\vartheta_{pext} = \frac{\dot{Q}}{20 \frac{W}{K}} - 0°C$

II' $\dot{Q} = 1 \frac{W}{K} \cdot (20°C - \frac{\dot{Q}}{20 \frac{W}{K}} - (\frac{\dot{Q}}{20 \frac{W}{K}} - 0°C))$

$\dot{Q} = 1 \frac{W}{K} \cdot (20°C - \frac{\dot{Q}}{10 \frac{W}{K}})$

$\dot{Q} = 20W - \frac{\dot{Q}}{10}$

$\dot{Q} + \frac{\dot{Q}}{10} = 20W$

$\dot{Q} = \frac{20W}{1{,}1} = 18{,}2W$

El flujo de calor es de 18,2 W por $1m^2$.