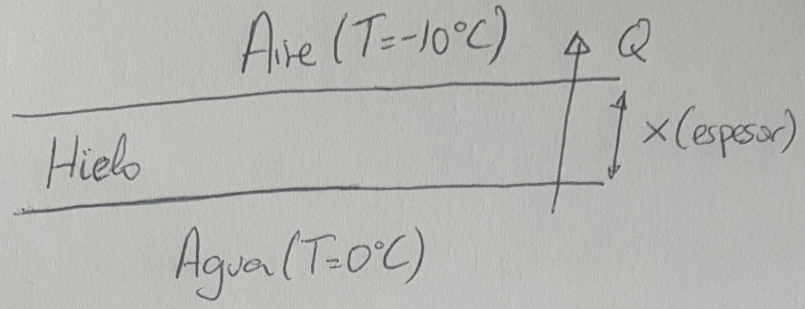
6:



Ley de Fourier: $\frac{dQ}{S} = -K\frac{\Delta T}{x}dt$ (1)

$$dQ = L_f \cdot dm = L_f \cdot \rho \cdot S \cdot dx$$

$$\frac{dQ}{S} = L_f \cdot \rho \cdot dx \quad (2)$$

Igualamos (1) y (2): $L_f \cdot \rho \cdot dx = -K\frac{\Delta T}{x} \cdot dt$

$$x\,dx = -K\frac{\Delta T}{L_f \cdot \rho} \cdot dt$$

$$\int_0^x x\,dx = -\int_0^t K\frac{\Delta T}{L_f \cdot \rho} \cdot dt$$

$$\frac{x^2}{2} = -K\frac{\Delta T}{L_f \cdot \rho}t$$

$$\frac{x^2}{2} = -\frac{0{,}0053 \cdot (-10)}{0{,}9 \cdot 80} \cdot 86400$$

$$\boxed{x = 11{,}3\ cm = 0{,}113\ m}$$