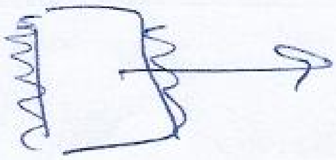
$$\frac{dQ}{dt} = k\,\frac{A}{d}\,(T_c - T_f)$$

I_Q

$$dQ = c_i\, m_i\, dT$$

$$\boxed{c_i\, m_i\, \frac{dT}{dt} = k\,\frac{A}{d}\,(T_c - T_f)}$$



$$I_Q = k\,\frac{A}{d}\,(T_c - T_f)$$

1

k conductividad térmica

$(k^{-1})^{-1} = 1/k$ → Resistividad térmica

ρ

k $\quad 1/k$

(A)

d

ΔT

I_Q

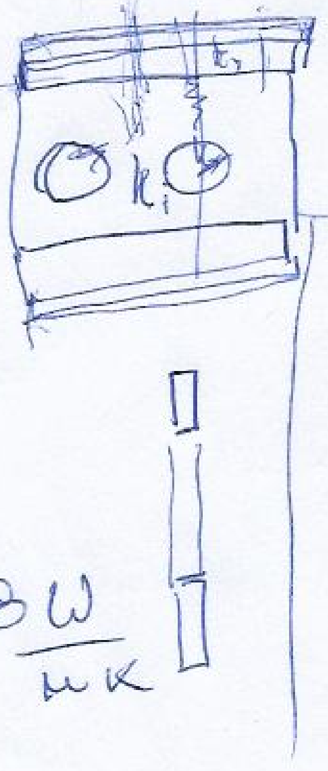
$$R = \frac{1}{k} \cdot \frac{d}{A}$$

$$\boxed{R = \frac{d}{A\,k}}$$

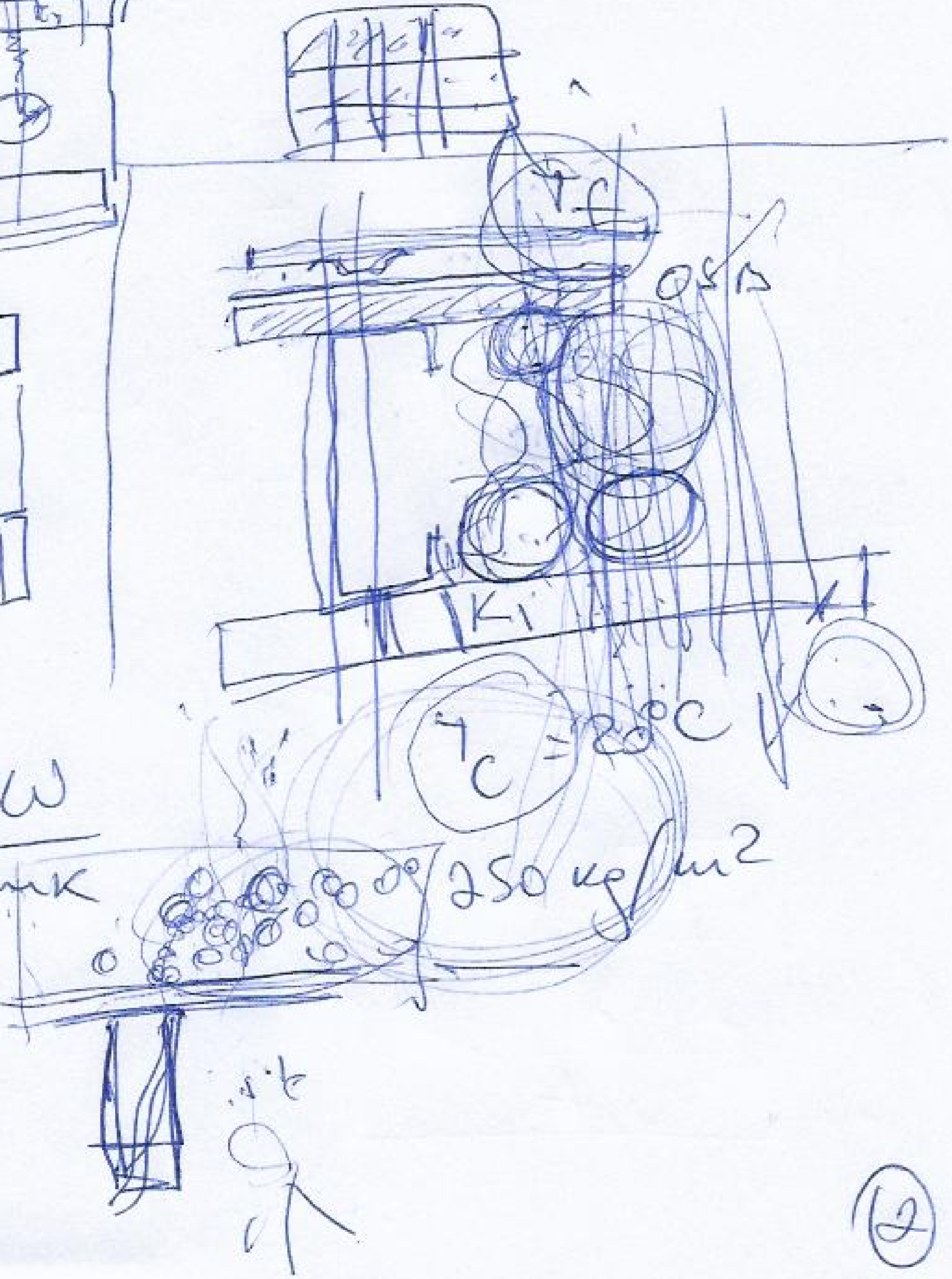
$$I_q = \left(\frac{k\,A}{d}\right) \Delta T$$

R^{-1}

$$I_q = \frac{\Delta T}{R} \Rightarrow \boxed{\Delta T = I_q R}$$



$K_{Al} = 208 \frac{W}{mK}$



$R_{Air} = 0,02 \frac{W}{mK}$

$0,9\, m^3$

$$1/R_2$$

$$I_{q2} = \frac{k_2 \cdot A}{L_2}\left(T_c - T\right)$$

$$1/R_1$$

$$I_{q1} = \frac{k_1 \cdot A}{L_1}\left(T - T_f\right)$$

$$I_{q1} = I_{q2}$$

?

$$I_q = \frac{K_{ef} \cdot A}{(L_1 + L_2)}\left(T_c - T_f\right)$$

$$I_q = \frac{1}{R_{ef}}\left(T_c - T_f\right)$$

?

$$\frac{k_1 \cancel{A}}{L_1}\left(T - T_f\right) = \frac{k_2}{L_2}\cancel{A}\left(T_c - T\right)$$

$$\frac{k_1}{L_1}T - \frac{k_1}{L_1}T_f = \frac{k_2}{L_2}T_c - \frac{k_2}{L_2}T$$

$$\left(\frac{k_1}{L_1} + \frac{k_2}{L_2}\right)T = \frac{k_2}{L_2}T_c + \frac{k_1}{L_1}T_f$$

$$\left(\frac{k_1 L_1 + k_2 L_2}{L_1 \cancel{\cdot} L_2}\right) T = \frac{L_1 k_2 T_c + k_1 T_f L_2}{\cancel{L_2 L_1}}$$

$$T = \frac{L_1 k_2 T_c + L_2 k_1 T_f}{k_1 L_1 + k_2 L_2}$$ temperatura en la zona de transición

$$R_1 = \frac{L_1}{K_1 A} \qquad R_2 = \frac{L_2}{K_2 A}$$

$$I_{q1} = \frac{T - T_f}{R_1} \qquad I_{q2} = \frac{T_c - T}{R_2}$$

$$\frac{T - T_f}{R_1} = \frac{T_c - T}{R_2}$$

$$T R_2 - T_f R_2 = T_c R_1 - T R_1$$

$$T(R_2 + R_1) = T_c R_1 + T_f R_2$$

$$T = \frac{T_c R_1 + T_f R_2}{R_2 + R_1}$$

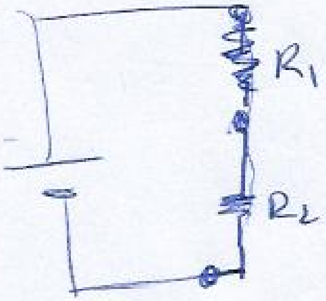
$$I_{q1} = \frac{T - T_f}{R_1} = \frac{1}{R_1}\left[\frac{T_c R_1 + T_f R_2}{R_1 + R_2} - T_f\right]$$

$$I_{q1} = \frac{1}{R_1}\left[\frac{T_c R_1 + \cancel{T_f R_2} - T_f R_1 - \cancel{T_f R_2}}{R_1 + R_2}\right]$$

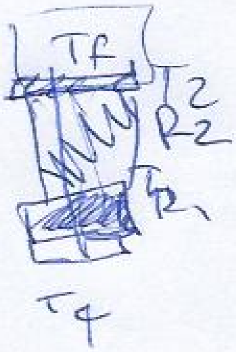
$$I_{q1} = I_{q2} = \frac{1}{\cancel{R_1}}\left(\frac{(T_c - T_f)\cancel{R_1}}{R_1 + R_2}\right)$$

(4).

$$I_{q1} = I_{q2} = I_q = \frac{T_c - T_f}{R_1 + R_2} \qquad \boxed{R_{eq} = R_1 + R_2}$$



$R_{ef} = R_1 + R_2$

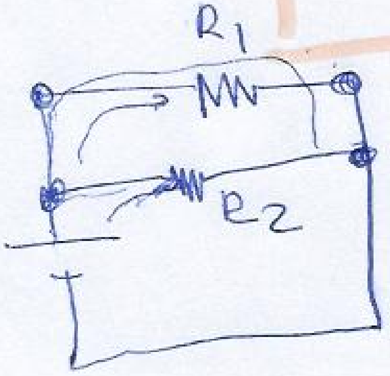


$$R_{ef} = R_1 + R_2$$

$$R_{ep} = R_1 + R_2 + R_3.$$

resistencias térmicas en serie.

$$\boxed{R_{ef} = \sum_{i=1}^{N} R_i}$$



$$\frac{1}{R_{ef}} = \sum_{i=1}^{n} \frac{1}{R_i}$$

$$\frac{dQ}{dt} = h \cdot A \cdot (T_f - T_c)$$

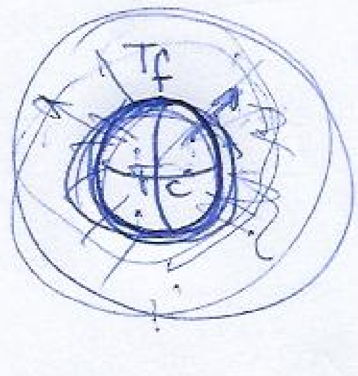
$\frac{dQ}{dT}$ = Cant de energía en [illegible] por unidad de tiempo.

$$\int_0^{\infty} B(\lambda, T)\, d\lambda \rightarrow \text{Stefan Boltzmann.}$$

$$\frac{dQ}{dt} = \sigma \cdot A \epsilon T^4$$

temperatura del objeto

$$\sigma = 5{,}67 \times 10^{-8} \frac{W}{m^2 K^4}$$



$A_c \sim A_f$

$\epsilon \simeq 1$

$$\frac{dQ_c}{dt} = -\sigma A_c T_c^4 \qquad \frac{dQ_f}{dt} = +\sigma A_f T_f^4$$

$$\frac{dQ_c}{dt} = \sigma A (T_f^4 - T_c^4)$$

$$dQ_f/dt = \sigma A (T_c^4 - T_f^4)$$