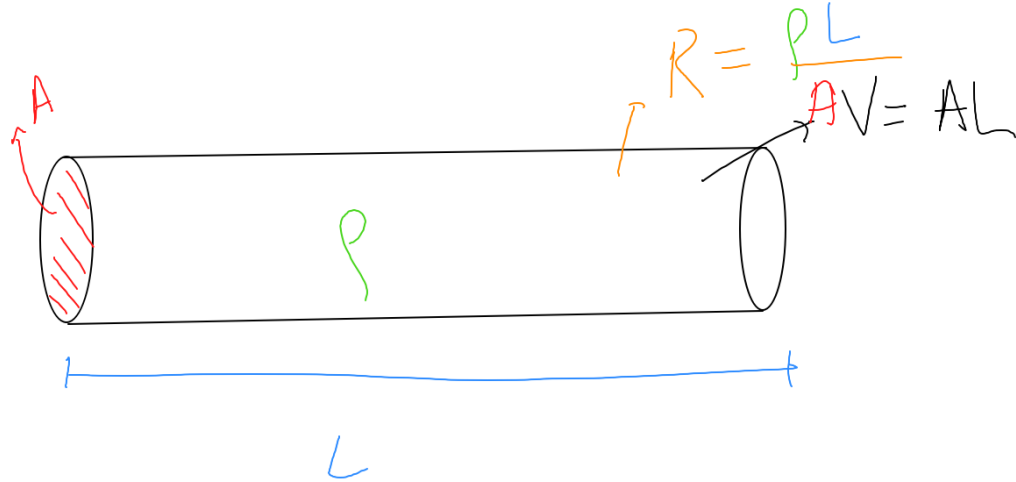


$L = ?$

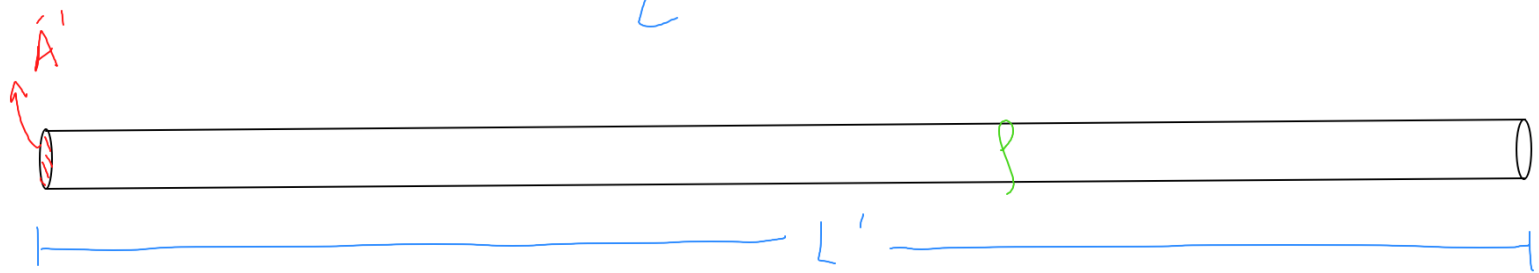
$$R = \frac{\rho L}{A} \rightarrow L = \frac{R \pi r^2}{\rho} = \frac{(28,0 \Omega) \pi (3,21 \times 10^{-4} \text{ m})^2}{1,50 \times 10^{-6} \Omega \text{ m}} = 6,04 \text{ m}$$

(Lei de Ohm) $\rightarrow \Delta V = R i = (28,0 \Omega) (4,30 \text{ A}) = 120 \text{ V}$

2.1.3)



$$\left. \begin{array}{l} m = \text{cte} \\ d = \text{cte} \end{array} \right\} V = \text{cte}$$



$$d = \frac{m}{V}$$

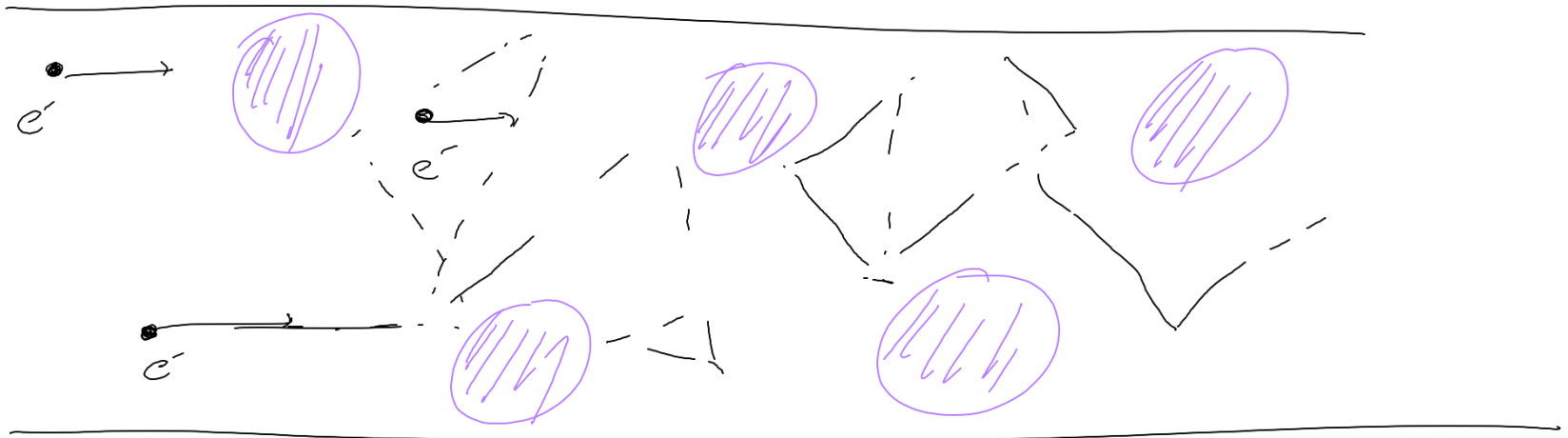
$$\left. \begin{array}{l} L' = 3L \\ A' = \frac{A}{3} \end{array} \right\} V' = L'A' = \frac{3LA}{3} = LA = V = \text{cte}$$

$$R' = \frac{\rho L'}{A'} = \frac{\rho 3L}{A/3} = 9 \frac{\rho L}{A} = 9R$$

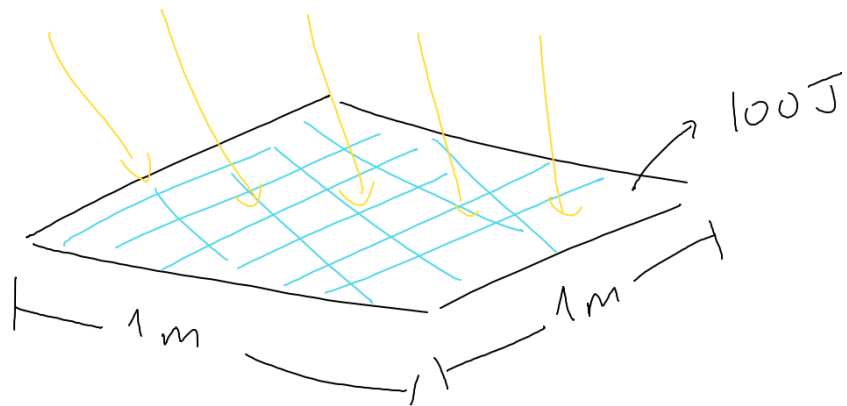
$$\boxed{R' = 9R}$$

$$R = \frac{\rho L}{A}$$

ρ = resistividad (prop. intensiva)
 L → mayor R
 A → mayor A
 menor R



2.1.7)



$$d_e = 100 \text{ J/m}^2$$

$$\text{Eff: } \eta = 0.45$$

Illuminación: 300 J
Refrigeración: 500 J
Otros: 1200 J

Total: 2500 J

J (Energía
captada)

$$E(\text{J}) = d_e \left(\frac{\text{J}}{\text{m}^2} \right) \dot{A} (\text{m}^2) \eta$$

(Energía entregada)

$$\dot{A} = \frac{E}{d_e \eta}$$

Eficiencia

$$\dot{A} = \frac{2500 \text{ J}}{100 \text{ J/m}^2 (0.45)} = 56 \text{ m}^2$$

$$E = d_e \dot{A} = 5,6 \times 10^3 \text{ J} = 5,6 \text{ kJ}$$



Energia
ceplena

$$P = \frac{\Delta E}{\Delta t} = \frac{5,6 \times 10^3 \text{ J}}{86400 \text{ s}} = 0,064 \text{ W} = 6,4 \times 10^{-2} \text{ W} = 64 \text{ mW}$$

Potencja
Recepcja

(1 dzien)

$$E = P \Delta t = (6,4 \times 10^{-2} \text{ W}) (3600 \text{ s}) = 2,3 \times 10^2 \text{ J}$$

Energia
ceplena 1 hora

(1 hora)

2.1.8)



$$p = \$9,357 / \text{kWh}$$

$$P = i \Delta V = 2,2 \times 10^3 \text{ W} = 2,2 \text{ kW}$$

$$\begin{cases} C = P E = 1,0 \times 10^2 \text{ \$/5h} \\ C' = 3,1 \times 10^3 \text{ \$/mes} \end{cases}$$

$$E = P \Delta t = (2,2 \times 10^3 \text{ W}) (18000 \text{ s}) = 40 \times 10^6 \text{ J} = 40 \text{ MJ}$$

↓
(5,0h)

Energía
consumida
en 5,0h

$$= (2,2 \text{ kW}) (5,0 \text{ h}) = 11 \text{ kWh} \rightarrow \text{Unidad de Energía de UTE}$$