

Estrategia.

①



$$u_1 = u_2 = 0.$$

②

$$V_2 = ? \quad -2 \text{ m/s} = V_2$$



$$V_1 = 3 \text{ m/s}$$

$$m_1 u_1 + m_2 u_2 = m_1 V_1 + m_2 V_2 \dots (1)$$

$$p_1^1 + p_2^1 = p_1^2 + p_2^2 ; \sum_{i=1}^4 \overline{p_i} = 0$$

Sol.

De la ec. (1) notamos que podemos despejar  $V_2$ :

Usando que  $0 = u_1 = u_2$  ;  $0 = m_1 V_1 + m_2 V_2 \Rightarrow V_2 = -\frac{m_1 V_1}{m_2} ; \begin{matrix} m_1 = 4 \text{ kg} \\ m_2 = 6 \text{ kg} \end{matrix}$

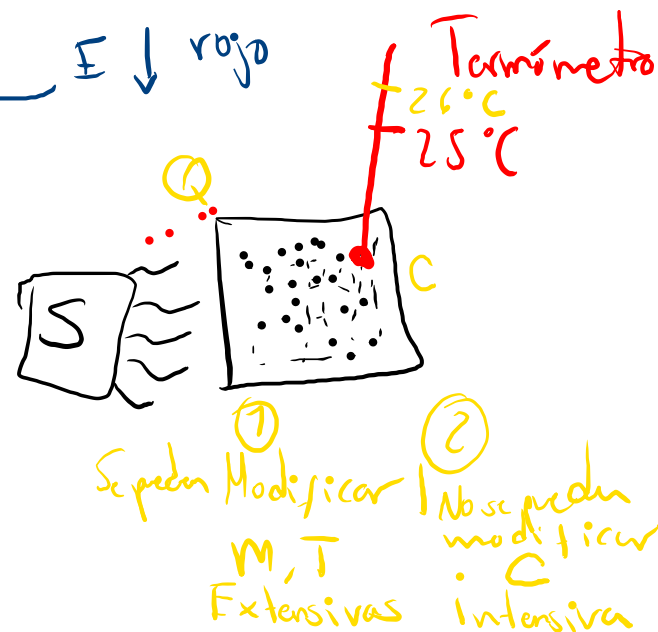
$$V_2 = -\frac{4 \text{ kg}}{6 \text{ kg}} 3 \text{ m/s} = -2 \text{ m/s}$$

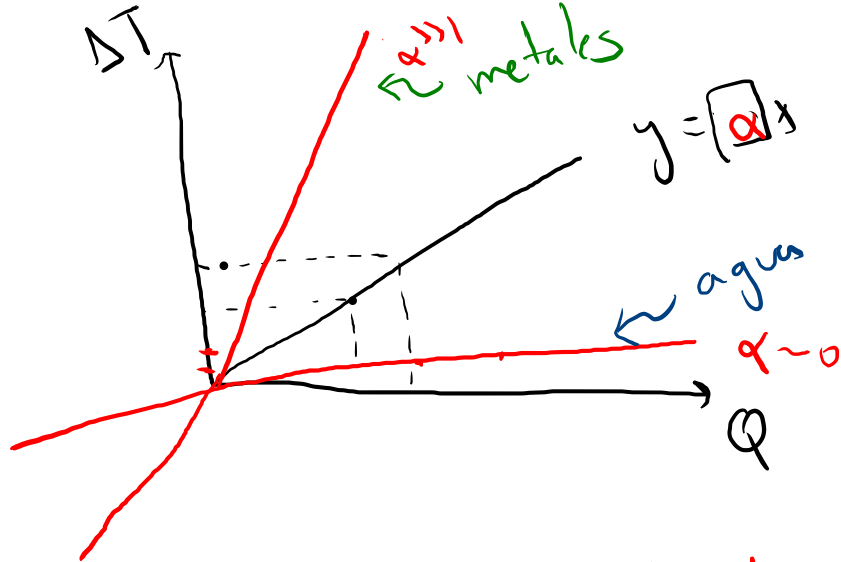


$$-273.15 \text{ } ^\circ\text{C} = 0 \text{ K}$$

$$300 \text{ K} \sim 25^\circ\text{C}$$

25°C





$$\frac{1}{2} \sim 0.5$$

$$\frac{1}{3} \sim 0.333 \dots$$

$$\frac{1}{10} \sim 0.1$$

$$\frac{1}{100} \sim 0.01$$

$$\alpha = \frac{1}{C_m} \cdot S_i C \gg 1$$

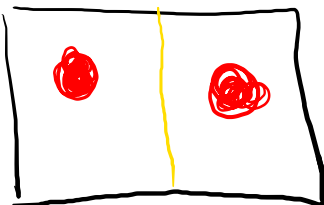
entonces  $\alpha \sim 0$

$$S_i C \sim 0$$

entonces  $\alpha \gg 1$



$t = 5 \text{ seg}$

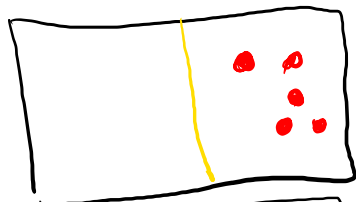


Mismo lado ✓✓

① ②  $\frac{2}{3} = p$

Diferentes lados

①  $\frac{1}{3} = p$

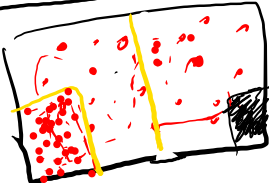


Mismo lado  $\frac{2}{5} = p$

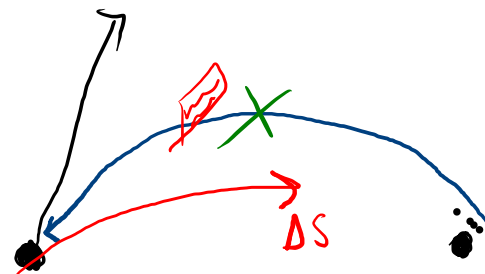
Diferentes lados

$1 + 1 + 1 = 3$   $\left(\frac{3}{5}\right) = p$

$N_A = 6.02 \times 10^{23}$   
partículas



$p \sim 0$



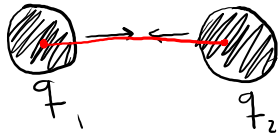
La cantidad de desorden  
en un sistema

$$(a+b)^2 = a^2 + 2ab + b^2$$

	1			
1	2	1		
1	2	3	2	1

Triángulo de Pascal

Ley de Coulomb



$$\vec{F} = k \frac{q_1 q_2}{|\vec{r}_1 - \vec{r}_2|^2} \hat{r}_{12}$$

$$G = 6.66 \times 10^{-11} \text{ m}^3/\text{kg s}^2$$

$$k = 9 \times 10^9 \frac{\text{Nm}^2}{\text{C}^2}$$

$$q_1: +, q_2: -$$

$$q_1 q_2: - \Rightarrow \vec{F}: \text{atractiva}$$

$$q_1: -, q_2: + \Rightarrow \vec{F}: \text{repulsiva}$$

$$q_1: +, q_2: +$$

$$a^m a^n = a^{m+n}$$

$$(a^m)^n = a^{mn}$$

$$\text{James C. Maxwell}$$

$$\alpha = 9 \times 10^9$$

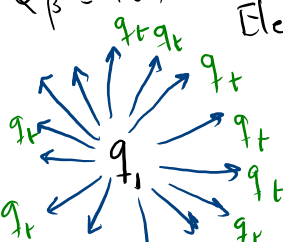
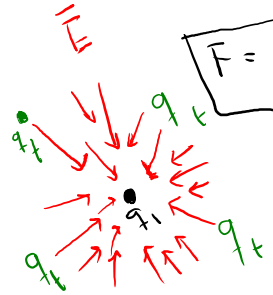
$$\beta = 5 \times 10^{15}$$

$$\gamma \beta = 45 \times 10^{24}$$

$$\vec{F} = k \frac{q_1 q_2}{d_{12}^2}$$

$$\vec{F}_e = q_1 \vec{E}$$

$$\vec{E} = \frac{\vec{F}_e}{q_1}$$



Electrostática

$$\vec{E} = -\frac{\Delta \phi}{\Delta x} = -\frac{\Delta V}{\Delta x}$$

Potencial eléctrico

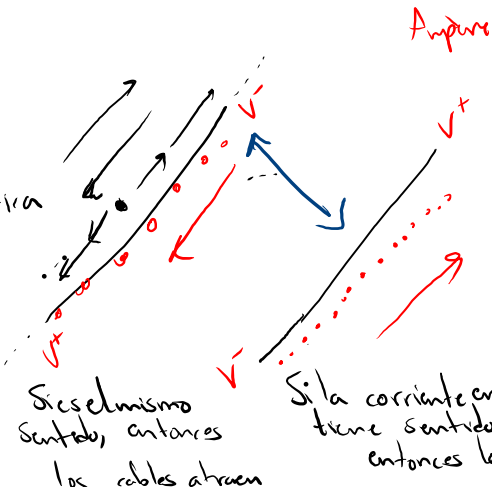
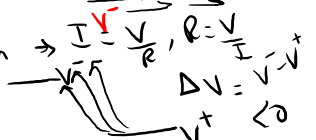
$$\Delta V = V \text{ voltage}$$

$$V \propto \frac{\Delta q}{\Delta t} = I$$

$$V = RI \text{ Ley de Ohm}$$



$$\vec{F}_e = q_1 \vec{E}$$

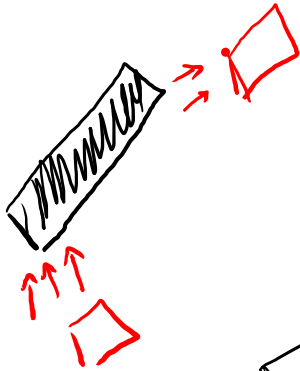


Si el mismo sentido, entonces los cables atraen

Si la corriente en los cables tiene sentidos opuestos, entonces los cables se repelen

# Magnetismo

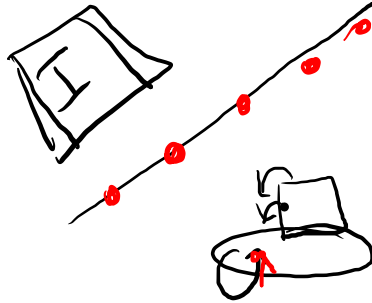
Hierro



Ampère

1700

Ley de Lenz



Ley de Coulomb.  
Ley de Ohm ( $\Delta$ )  
Inducción magnética.  
Inducción eléctrica.  
Ley de Lenz.

Inducción magnética

