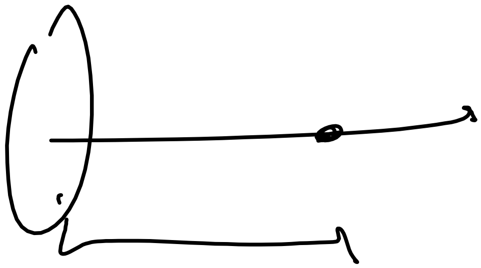
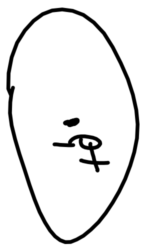
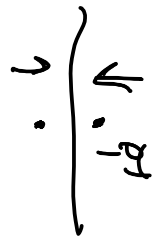


$x$

$$\vec{E}(x) = \frac{1}{4\pi\varepsilon_0}\,\frac{Qx}{(x^2+a^2)^{3/2}}$$







$$m\ddot{x} = -q\,E(x)$$

$$x \ll a$$

$Q$ ↑

anillo

$$a^2 + x^2 \cong a^2$$

$$\vec{E}(x) = \frac{Qx}{4\pi\varepsilon_0 a^3}$$

$$\ddot{x} + x\underbrace{\frac{Q}{4\pi\varepsilon_0 a^3 m}}_{\omega^2} = 0$$

$$\omega = 2\pi\nu$$

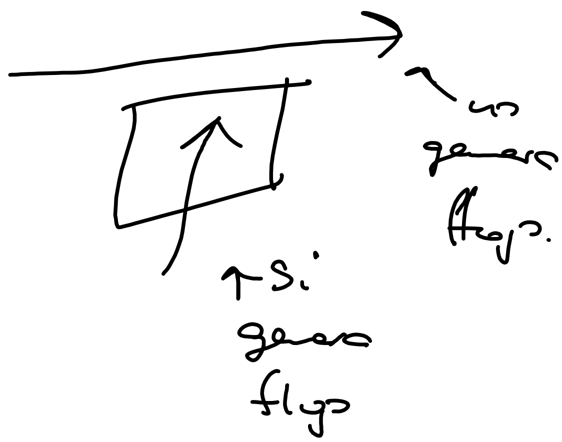
# TALLER 3

Vector de área:

$$\vec{A} = |A|\hat{n}$$

Superficie Plana $\Phi_E = \vec{E} \cdot \vec{A}$.

$\hookrightarrow d\vec{A}$




## Ley de Gauss

$$\Phi_E = \frac{Q_{enc}}{\varepsilon_0}.$$

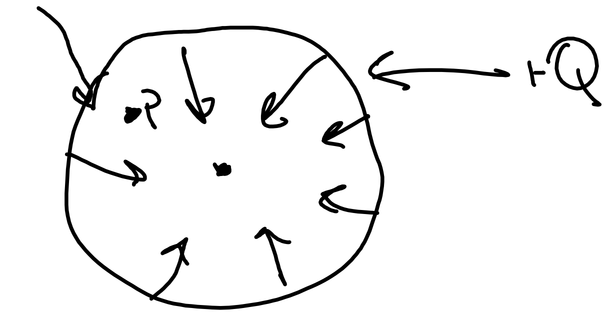
carga encerrada

material donde está.

$$E \propto \frac{1}{r^2}$$

$$\Phi_E = \oint_S \vec{E} \cdot \hat{n}\, dS$$

Forma integral de la ley de gauss.

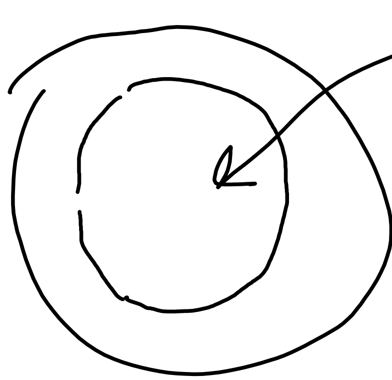



$E_p = ?$

$= 0$ $\neq 0$

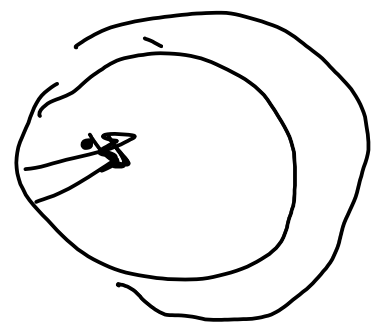
es igual a cero.

Q



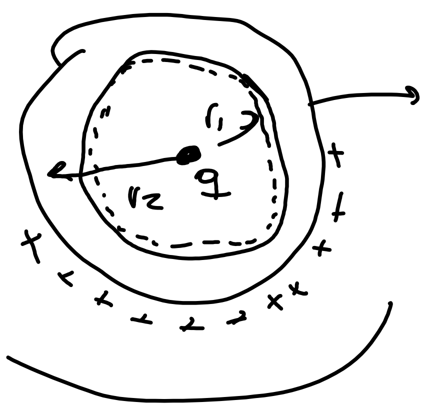
$Q_{enc} = 0$

$E = 0$.



Conductores.

El campo dentro de un conductor siempre es cero.




conductora. neutra.

$$E(0<r<r_1) = \frac{q}{4\pi\epsilon_0 r^2}$$

$$E(r_1<r<r_2) = 0.$$

$$E(r_2<r) = \frac{q}{4\pi\epsilon_0 r^2}$$

$$EA = \frac{Q_{enc}}{\epsilon_0} \longrightarrow \underline{q - Q}$$

## TAREA 3:

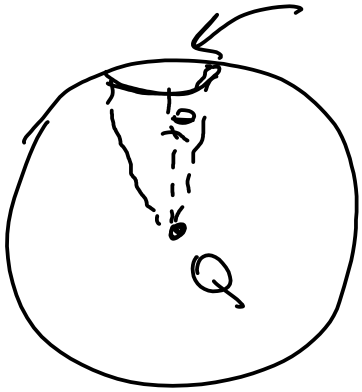
haz $\quad e^- \; \bullet\!\longrightarrow$

Teorema W-E

$$W_{neto} = \Delta K = -K$$

$$-qE\cdot d \longrightarrow \boxed{E = \frac{K}{qd}}$$

# TAREA 4:




$$A = 2\pi r^2 (1-\cos\theta)$$

$$A = \pi (a^2 + h^2)$$

$$E = \frac{Q}{4\pi\epsilon_0 r^2}$$

$$\Phi_E = \frac{Q}{2\epsilon_0}(1-\cos\theta)$$

$\rightarrow \theta = \pi/2 \rightarrow \Phi_E = \dfrac{Q}{2\epsilon_0}$

$\rightarrow \theta = \pi \rightarrow \Phi_E = \dfrac{Q}{\epsilon_0}$