



UNIVERSIDAD DE SAN CARLOS DE GUATEMALA  
FACULTAD DE INGENIERÍA  
ESCUELA DE CIENCIAS  
DEPARTAMENTO DE FÍSICA

F2 B	Nota:
DIC.2022	
AUX. CESAR FERNANDEZ	

TAREA  
HOJA DE TRABAJO  
EXAMEN CORTO

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☐

No.

2

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# HT 2

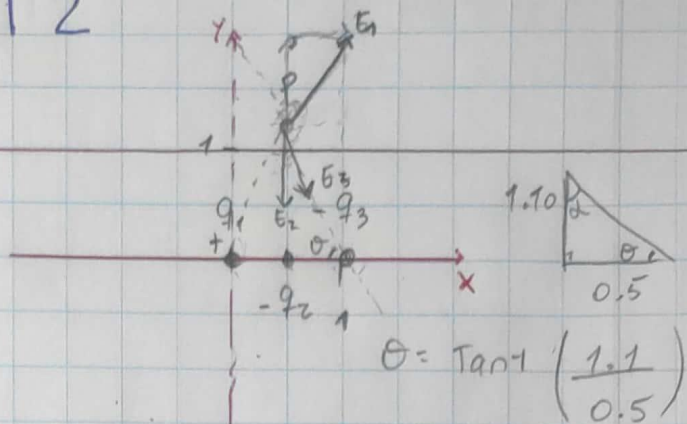
## Problema 1.

$$q_1 = 11.2 \text{ nC} \quad (0,0)$$

$$q_2 = -7.8 \text{ nC} \quad (0.5,0)$$

$$q_3 = -8.6 \text{ nC} \quad (1,0)$$

$$\text{Punto } (0.5, 1.1)$$



$$E = \frac{k|q|}{r^2}$$

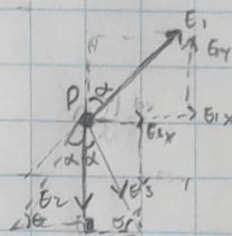
$$E_R = E_1 + E_2 + E_3$$

$$\theta = 65.5^\circ$$

$$r_1^2 = 0.5^2 + 1.1^2 = 1.46 \text{ m}^2 \quad \alpha = 24.5^\circ$$

$$\vec{E}_{1x} = \frac{k(-11.2 \text{ nC})}{(1.46)} \sin(24.5^\circ) = 28.63 \hat{i} \text{ N/C}$$

$$\vec{E}_{1y} = \frac{k(-11.2 \text{ nC})}{(1.46)} \cos(24.5^\circ) = 67.82 \hat{j} \text{ N/C}$$



$$\vec{E}_2 = \frac{k(7.8 \text{ nC})}{(1.10)^2} = -58.01 \hat{j} \text{ N/C}$$

$$\vec{E}_{3x} = \frac{k(8.6 \text{ nC})}{(1.46)} \sin 24.5^\circ = 22.9 \hat{i} \text{ N/C}$$

$$\vec{E}_{3y} = \frac{k(8.6 \text{ nC})}{(1.46)} \cos 24.5^\circ = -48.24 \hat{j} \text{ N/C}$$

$$\vec{E}_R = 50.63 \hat{i} - 43.43 \hat{j} \text{ N/C}$$

$$E_R = \sqrt{(50.63)^2 + (-43.43)^2} = 66.71 \text{ N/C}$$

$$\beta = \tan^{-1} \left( \frac{43.43}{50.63} \right) = 40.6^\circ$$

$$E_R = 66.7 \text{ N/C}$$

$$\beta = 40.6^\circ$$

