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FACULTAD DE INGENIERÍA
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DEPARTAMENTO DE FÍSICA
ING. OSCAR TECUN

Física 2 P	Nota:
Junio 2022	
AUX. ANDREA GARCIA	

TAREA

HOJA DE TRABAJO

EXAMEN CORTO

☐☒☐

No.

4

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FECHA:

10/06/22

NOMBRE:

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$$\phi_1 = E \cdot A$$

$$E = (4\hat{i} - 2\hat{j}) \text{ N/C}$$

$$A = (3\hat{i} + 7\hat{j}) \text{ m}^2$$

$$\phi_1 = (4)(3)\hat{i} + (-2)(7)\hat{j}$$

$$\phi_1 = 12\hat{i} - 14\hat{j}$$

$$\phi_1 = -2$$

$$\phi_2 = E \cdot A$$

$$E = (4\hat{i} - 2\hat{j}) \text{ N/C}$$

$$A = (3\hat{i} - 7\hat{j}) \text{ m}^2$$

$$\phi_2 = (4)(3) + (-2)(-7)$$

$$\phi_2 = 12 + 14$$

$$\phi_2 = 26$$

$$\phi_1 = -2 \frac{\text{N} \cdot \text{m}^2}{\text{C}}$$
$$\phi_2 = 26 \frac{\text{N} \cdot \text{m}^2}{\text{C}}$$

$$\sigma = 4 \times 10^{-9} \frac{\text{C}}{\text{m}^2} = \sigma = \frac{Q}{A} = q = \sigma A$$

$$\oint E dA = \frac{q_{\text{enc}}}{\epsilon_0}$$

$$EA' = \frac{q_{\text{enc}}}{\epsilon_0}$$

$$E = \frac{q_{\text{enc}}}{A' \epsilon_0}$$

$$E = \frac{\sigma A}{A' \epsilon_0}$$

$$E = \frac{(4 \times 10^{-9})(4\pi(0.02)^2)}{4\pi(0.04)^2 \epsilon_0}$$

$$E = 112.99$$

$$\phi = (112.99)(4\pi(0.04)^2) \cos 0 = 2.27$$

$$\phi = 2.27 \approx 2.3 \frac{\text{N} \cdot \text{m}^2}{\text{C}}$$

$$\vec{A} = (0, 9)$$

$$\Phi = E \cdot A$$

$$A = 3^2 \hat{j} = 9$$

$$\Phi = (0\hat{i} + 9\hat{j}) \cdot (8\hat{i} + 6\hat{j})$$

$$E = (8\hat{i} + 2(3)\hat{j})$$

$$\Phi = (8)(0) + (9)(6) = 54$$

$$E = (8\hat{i} + 6\hat{j})$$

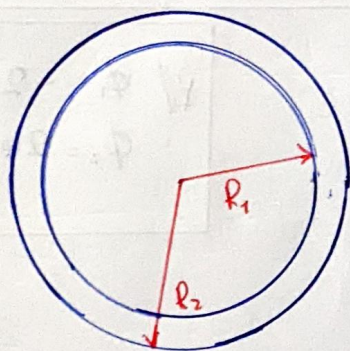
$$\Phi = 54 \frac{N}{C} m^2$$

$$r = 8 \text{ cm}$$

$$q = \rho V$$

$$q = (5 \times 10^{-9}) \left(\frac{4}{3} \pi [(0.08)^3 - (0.06)^3] \right)$$

$$q = 6.199 \times 10^{-12}$$



$$\oint E da = \frac{q_{enc}}{\epsilon_0}$$

$$EA = \frac{q_{enc}}{\epsilon_0} = E = \frac{q_{enc}}{A \epsilon_0}$$

$$r = 15 \text{ cm}$$

$$EA = \frac{\rho V}{\epsilon_0}$$

$$E = \frac{(6.199 \times 10^{-12})}{4\pi (0.08)^2 \epsilon_0} = 8.71 \frac{N}{C}$$

$$E = \frac{\rho V}{A \epsilon_0} = \frac{(5 \times 10^{-9})(3.28 \times 10^{-3})}{(4\pi (0.15)^2) \epsilon_0} = 6.56 \frac{N}{C}$$

$$\rho = 8.71 \frac{N}{C}$$

$$= 6.56 \frac{N}{C}$$

$$E = \frac{Pr}{2\epsilon_0} = \frac{(5 \times 10^{-9})(0.05)}{2\epsilon_0} = 14.1 \frac{N}{C}$$

$$\boxed{211 \ E = 14 \frac{N}{C}}$$

$$E = \frac{p r^2}{2\epsilon_0 r} = \frac{(5 \times 10^{-9})(0.12)^2}{2\epsilon_0(0.15)} = 27.1$$

$$\boxed{211 \ E = 27 \frac{N}{C}}$$

$$\frac{q}{A} = \sigma \quad F = Eq \quad F = ma$$

$$E = \frac{F}{q}$$

$$E = \frac{\sigma}{2\epsilon_0}$$

$$\frac{F}{q} = \frac{\sigma}{2\epsilon_0}$$

$$\boxed{211 \cdot 2.48 \frac{N}{m^2}}$$

$$\sigma = \frac{2F\epsilon_0}{q}$$

$$\sigma = \frac{2(mg)(\epsilon_0)}{q}$$

$$\sigma = \frac{2(10 \times 10^{-3})(9.8)(\epsilon_0)}{-0.700 \times 10^{-3}} = -2.478 \times 10^{-9} \quad \sigma = -2.48 \times 10^{-9} \quad -2.48 \frac{N}{m^2}$$