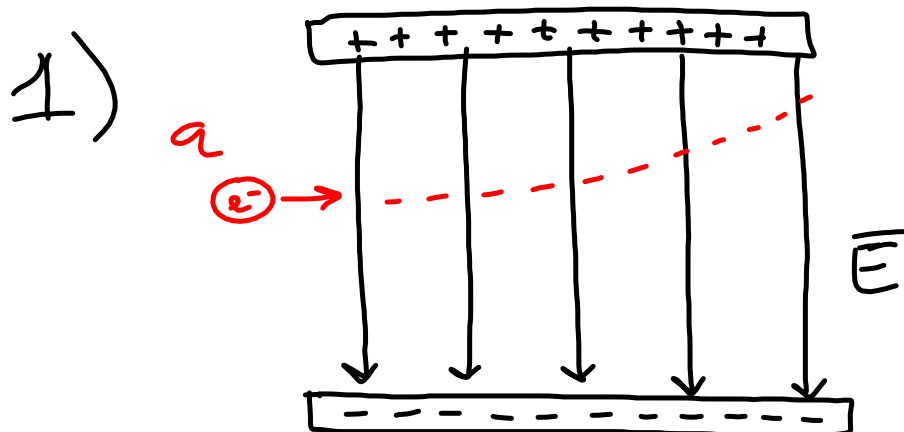


# ELECTRIC FIELD PRACTICE

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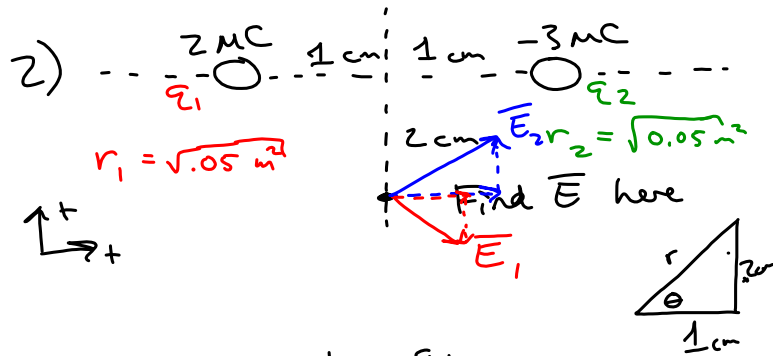
$$\vec{E} = \frac{\vec{F}}{q}$$

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

$$qE = \frac{mv^2}{r}$$

centripetal  
force

$$\vec{F} = \frac{mv^2}{r}$$



$$E_1 = \frac{1}{4\pi\epsilon_0} \frac{q_1}{r_1^2}$$

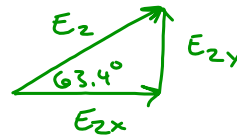
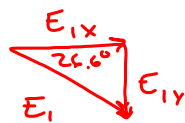
$$= \frac{(9 \times 10^9 \frac{\text{N}\cdot\text{m}^2}{\text{C}^2})(2 \times 10^{-6} \text{ C})}{(\sqrt{0.05} \text{ m})^2}$$

$$= 360,000 \text{ N/C}$$

$$E_2 = \frac{1}{4\pi\epsilon_0} \frac{q_2}{r_2^2}$$

$$= \frac{(9 \times 10^9 \frac{\text{N}\cdot\text{m}^2}{\text{C}^2})(3 \times 10^{-6} \text{ C})}{(\sqrt{0.05} \text{ m})^2}$$

$$= 540,000 \text{ N/C}$$



$$\bar{E}_x = E_{1x} + E_{2x}$$

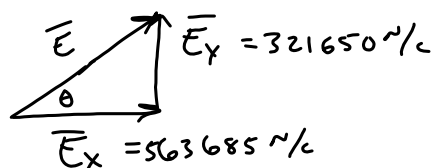
$$= E_1 \cos(26.6^\circ) + E_2 \cos(63.4^\circ)$$

$$= 563685 \text{ N/C}$$

$$\bar{E}_y = -E_{1y} + E_{2y}$$

$$= -E_1 \sin(26.6^\circ) + E_2 \sin(63.4^\circ)$$

$$= 321650 \text{ N/C}$$



$$\bar{E} = 648999 \text{ N/C}$$

at  $29.71^\circ$  North east  
(Up and right)

2 continued)

$$\vec{E}_1 = \langle E_{1x}, E_{1y} \rangle$$

$$+ \vec{E}_2 = \langle E_{2x}, E_{2y} \rangle$$

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$$\vec{E} = \langle 563685 \text{ N/C}, 321650 \text{ N/C} \rangle$$