

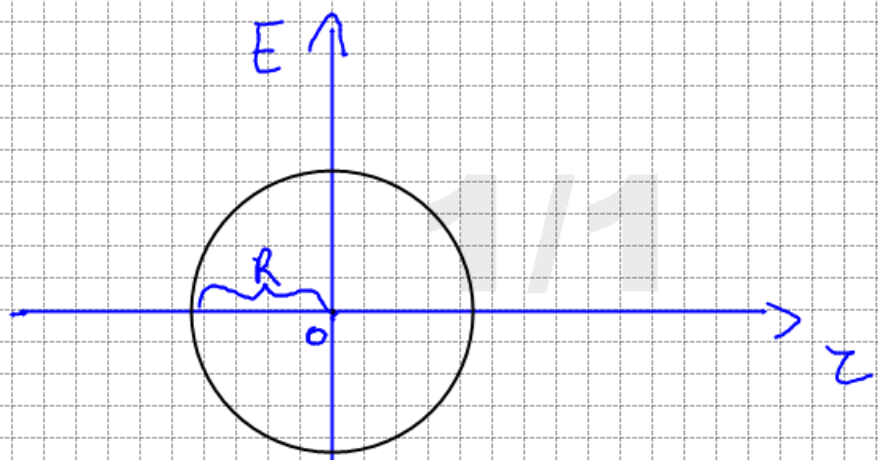
PA9 884 M39

$$R = 16 \text{ cm}$$

$$Q = 8,0 \text{ nC}$$

$$V_{\infty} = 0$$

$$r > R$$



$$\vec{E} = \frac{\vec{F}}{q} = \frac{1}{4\pi\epsilon} \cdot \frac{qQ}{r^2} \cdot \frac{1}{q} = k_0 \cdot \frac{Q}{r^2}$$
$$8,99 \cdot 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2 \cdot \frac{8,0 \cdot 10^{-9} \text{ C}}{r^2} = 72 \frac{\text{N}\cdot\text{m}}{\text{C}}$$
$$E(r) = 72 \text{ N}\cdot\text{m} \cdot \frac{1}{r^2}$$

a) se r tende a $\infty \Rightarrow E(r) \rightarrow 0$

b) se $r < R \Rightarrow E(r) = 0$

$$V(R) = ?$$

$$V = k_0 \cdot \frac{Q}{R} = 9 \cdot 10^9 \text{ N}\cdot\text{m}^2/\text{C}^2 \cdot \frac{8 \cdot 10^{-9} \text{ C}}{0,16 \text{ m}}$$

$$V(R) = 450 \text{ V} = 4,5 \cdot 10^2 \text{ V}$$