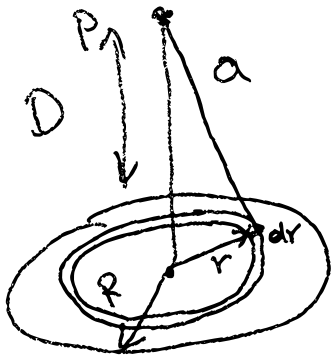


AGUNGAN 29. 24



$$\sigma = 7,73 \text{ FC/m}^2 \quad R = 64 \text{ cm}$$

$$D = 25,9 \text{ cm}$$

$$dr \rightarrow ds = 2\pi r dr$$

$$\frac{q}{\pi R^2} = \sigma = \frac{dq}{ds} \Rightarrow$$

$$dq = \sigma \cdot ds \Rightarrow$$

$$dq = \sigma \cdot 2\pi r dr$$

$$dv = \frac{1}{4\pi\epsilon_0} \cdot \frac{dq}{a} \Rightarrow \quad a = \sqrt{D^2 + r^2}$$

$$\Rightarrow dv = \frac{1}{24\pi\epsilon_0} \cdot \frac{\sigma \cdot 2\pi r dr}{\sqrt{D^2 + r^2}} \Rightarrow$$

$$\Rightarrow dv = \frac{\sigma}{2\epsilon_0} \cdot \frac{r dr}{\sqrt{D^2 + r^2}}$$

$$V_{P1} = 9,71 \times 10^3 \text{ V}$$

$$V_{P1} = \frac{\sigma}{2\epsilon_0} \int_0^R \frac{r dr}{\sqrt{D^2 + r^2}} \Rightarrow V = \frac{\sigma}{2\epsilon_0} \left[\sqrt{D^2 + r^2} \right]_0^R \Rightarrow$$

$$V_{P1} = \frac{\sigma}{2\epsilon_0} \cdot \left[\sqrt{D^2 + R^2} - D \right]$$

$$V_{P1} = \frac{\sigma}{8\epsilon_0} \cdot \left[\sqrt{D^2 + R^2} - D \right] \Rightarrow$$

$$V_{P1} = \frac{7,73 \times 10^{-15}}{8 \cdot 8,85 \times 10^{-12}} \cdot \left[\sqrt{(25,9 \times 10^{-2})^2 + (64 \times 10^{-2})^2} - 25,9 \times 10^{-2} \right]$$