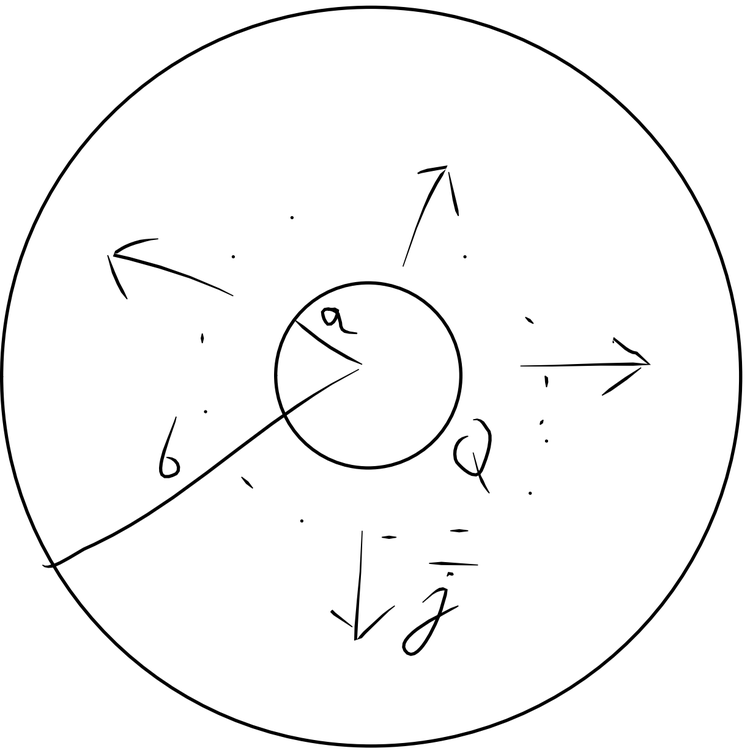

$$U = \frac{\lambda}{2\pi\varepsilon_0}\ln\left(\frac{r_0}{a}\right) - \frac{\lambda}{2\pi\varepsilon_0}\ln\left(\frac{r_0}{b}\right) = \frac{\lambda}{2\pi\varepsilon_0}\ln\left(\frac{b}{a}\right)$$

$$\lambda = \frac{2\pi\varepsilon_0 U}{\ln\left(\frac{b}{a}\right)}$$

$$\bar{E}(r) = \frac{\lambda}{2\pi\varepsilon_0 r}\hat{e}_r \qquad a \le r \le b$$

$$I = \int_S \sigma \bar{E}(r)\cdot d\bar{S} = 2\pi r L \sigma \frac{\lambda}{2\pi\varepsilon_0 r} = \frac{\lambda L \sigma}{\varepsilon_0} = \frac{2\pi U L}{\ln\left(\frac{b}{a}\right)}$$

$$R = \frac{U}{I} = \frac{\ln\left(\frac{b}{a}\right)}{2\pi L}$$

$$R = \int_a^b \frac{dr}{\sigma 2\pi r L} = \frac{\ln\left(\frac{b}{a}\right)}{\sigma 2\pi r L}$$