

Problema 1

$$dE_y = l dl \cos q / 4 \pi \epsilon_0 R^2 \quad dl = R dq \quad E_y = (l/4 \pi \epsilon_0 R^2) \int \cos q dq$$

$$E_y = - (l/2 \pi \epsilon_0 R) y \quad E_x = 0$$

Problema 2

$$B_s = \mu_0 n I = \mu_0 n I_0 \sin \omega t \quad NF = N B p R^2 = N p R^2 \mu_0 n I_0 \sin \omega t$$

$$E \cdot 2 p R = N p R^2 \mu_0 n I_0 d(\sin \omega t)/dt = N p R^2 \mu_0 n I_0 \omega \cos \omega t \quad E = 1/2 (N R \mu_0 n I_0 \omega \cos \omega t) = 16.9 \cos \omega t \text{ V/m}$$

$$e = d(NF)/dt = N \mu_0 n I_0 [\sin \omega t dA/dt + A \omega \cos \omega t] \quad e_{5s} = 9,262 \text{ V}$$