Charged Conductor Problem (4)

A long conducting cylinder of radius $R_0 = 3$cm carries a charge per unit length $\lambda_c = 5.0\mu$C/m. It is surrounded by a conducting cylindrical shell of radii $R_1 = 7$cm and $R_2 = 11$cm. The shell carries a charge per unit length $\lambda_s = -8.0\mu$C/m.

(a) Find the linear charge densities λ_1, λ_2 on the inner and outer surfaces of the shell.
(b) Find the electric fields E_0, E_1, E_3 in the vicinity of the three conducting surfaces.