55. A small section of the distribution has charge dq is $\lambda\, dx$, where $\lambda = 9.0 \times 10^{-9}$ C/m. Its contribution to the field at $x_P = 4.0$ m is

$$d\vec{E} = \frac{dq}{4\pi\,\varepsilon_0\,(x - x_P)^2}$$

pointing in the $+x$ direction. Thus, we have

$$\vec{E} = \int_0^{3.0\,\mathrm{m}} \frac{\lambda\, dx}{4\pi\,\varepsilon_0\,(x - x_P)^2}\ \hat{\mathrm{i}}$$

which becomes, using the substitution $u = x - x_P$,

$$\vec{E} = \frac{\lambda}{4\pi\,\varepsilon_0} \int_{-4.0\,\mathrm{m}}^{-1.0\,\mathrm{m}} \frac{du}{u^2}\ \hat{\mathrm{i}} \quad = \frac{\lambda}{4\pi\,\varepsilon_0} \left(\frac{-1}{-1.0\,\mathrm{m}} - \frac{-1}{-4.0\,\mathrm{m}} \right)\ \hat{\mathrm{i}}$$

which yields 61 N/C in the $+x$ direction.