1. Two large parallel sheets of charge with uniform charge densities are separated by a distance that is small compared with their dimensions. One sheet carries a positive charge density of $+6.8 \, \mu\text{C/m}^2$, and the other a negative charge density of $-4.3 \, \mu\text{C/m}^2$. What is the electric field (magnitude and direction) (a) to the left of the positive sheet; (b) in the region between the two sheets; and (c) to the right of the negative sheet?

Answer: (c) $1.4 \times 10^5 \, \text{N/C}$

2. An infinite line of positive charge of charge density $\lambda$ lies along the $z$ axis. A second line of negative charge density $-2\lambda$ lies parallel to the $z$ axis at the location $x = d, y = 0$. Calculate the electric field in the $xy$ plane at the locations (a) $x = d/2, y = 0$ (b) $x = 2d, y = 0$ (c) $x = 0, y = d$

Answer: (c) $E_x = \frac{\lambda}{2\pi\varepsilon_0 d}, \quad E_y = ???$