

1. a) $\Phi_E = 645 \text{ Nm}^2/\text{C}$

1. b) $\Phi_E = \frac{qx_0}{2\epsilon_0} \left[-\frac{1}{\sqrt{x_0^2 + R^2}} + \frac{1}{x_0} \right]$

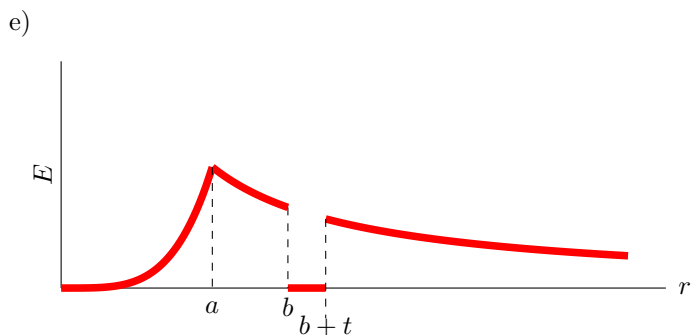
2. a) $E = \frac{\rho_0}{5a^3\epsilon_0} r^4$

b) $E = \frac{\rho_0 a^2}{5\epsilon_0 r}$

c) $E = 0$

d) $E = \frac{\rho_0 a^2}{5\epsilon_0 r}$

f) $\rho_0 = \frac{5\lambda}{2\pi a^2}$

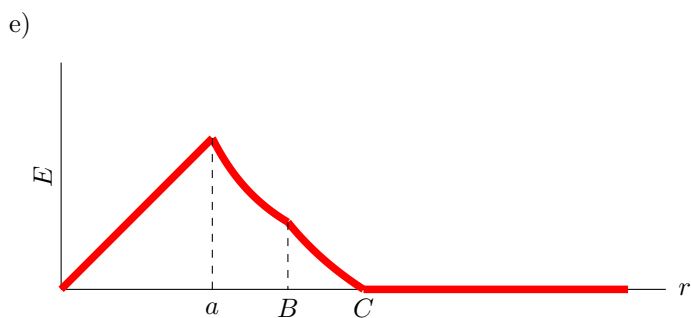


3. a) $E = \frac{Q}{4\pi a^3\epsilon_0} r$

b) $E = \frac{Q}{4\pi r^2\epsilon_0}$

c) $E = \frac{Q}{4\pi\epsilon_0 r^2} \frac{C^3 - r^3}{C^3 - B^3}$

d) $E = 0$



4. a) $E = 0$

b) $E = \frac{\gamma(r^2 - a^2)}{2\epsilon_0 r^2}$

c) $E = \frac{\gamma(b^2 - a^2)}{2\epsilon_0 r^2}$

e) $E_0 = \frac{\gamma}{2\epsilon_0}$

f) $\gamma = \frac{Q}{2\pi(b^2 - a^2)}$

d) Plot $E(r)$

