Chapter 25 - Current, Resistance and Emf
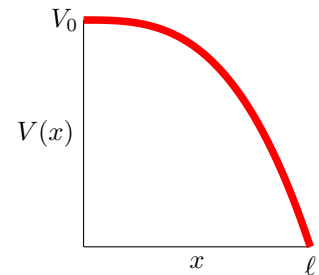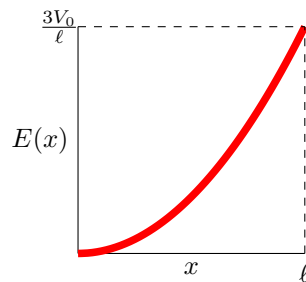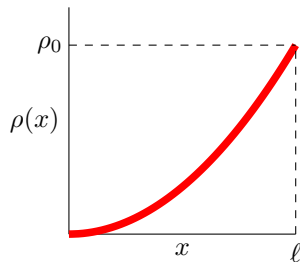
1a) $I = \dfrac{3\pi V_0 B^2}{\rho_0 \ell}$

1b) $E(x) = \dfrac{3V_0 x^2}{\ell^3}$

1c) $V(x) = V_0 \left(1 - \dfrac{x^3}{\ell^3}\right)$

1e) $P = \dfrac{3\pi V_0^2 B^2}{\rho_0 \ell}$

2a) $R = \dfrac{\rho h}{\pi r_1 r_2}$

3) $r = \dfrac{V_1 - V_2}{I_2}$

$R = \dfrac{V_2}{I_2}$

4a) $R = \sqrt{r_2^2 - r_1^2}$

4b) $\rho_B = \dfrac{r_2^2}{r_2^2 - r_1^2}\rho_A$

5a) $I = 3.33$ A

5b) $R = 36\ \Omega$

6) $\dfrac{I(20)}{I(2550)} = 12.385$

$= 1238.5\%$

7) $\dfrac{R_2}{R_1} = 4$