

13. From the result of the problem 11,

$$\begin{aligned} q(t) &= \frac{1}{R}[\Phi_B(0) - \Phi_B(t)] = \frac{A}{R}[B(0) - B(t)] \\ &= \frac{1.20 \times 10^{-3} \text{ m}^2}{13.0 \, \Omega} [1.60 \text{ T} - (-1.60 \text{ T})] = 2.95 \times 10^{-2} \text{ C} . \end{aligned}$$