

Fall EM HW #2 - Griffiths - ANSWERS

Physics Col Systems
14. Oct. 02
Zita

Q2 # $\frac{16}{75}, \frac{24}{82}, \frac{39}{106}, \frac{30}{90}$ (rod), $\frac{32}{95}$ (sphere), $\frac{40}{106}$ (rod)

Q3 # $\frac{2}{115}, \frac{3}{116}, \frac{5}{121}, \left(\frac{9}{126} + \frac{2.22}{82} \right)$ line

ANSWERS:

2.16: $\vec{E}_{\text{between}} = \frac{\rho a^2}{2\epsilon_0 s} \hat{s}$; 2.28: $V = -\frac{\rho a^2}{4\epsilon_0} \left(1 + 2 \ln \frac{b}{a} \right)$

2.39: $\frac{C}{l} = \frac{2\pi\epsilon_0}{\ln\left(\frac{b}{a}\right)}$

2.32: $W = \frac{1}{4\pi\epsilon_0} \frac{3q^2}{5R}$; 2.40: $W = \frac{\epsilon_0}{2} E^2 A \ell$

2.3: $V = -\frac{C}{r} + k$, $V = c \ln s + k$

2.22: $E = \frac{1}{4\pi\epsilon_0} \frac{2\lambda}{s} \hat{s}$, $V = -\frac{1}{4\pi\epsilon_0} 2\lambda \ln\left(\frac{s}{a}\right)$; 3.9: $V = \frac{\lambda}{4\pi\epsilon_0} \ln \left[\frac{y^2 + (z+d)^2}{y^2 + (z-d)^2} \right]$