SHOW ALL WORK!!!!!
REPORT ALL NUMBERS TO THREE SIGNIFICANT FIGURES!
Use the conversion constants and data given on the front page.

A charge of +6.00 μC is placed on a spherical, conducting shell whose inner radius is \( R_1 \) and outer radius is \( R_2 \). Then another charge of -9.00 μC is placed at the exact center of the spherical shell.

(a) Calculate the electric field at a distance \( R \) from the center if \( R > R_2 \).
(b) Calculate the electric field at a distance \( R \) from the center if \( R_1 < R < R_2 \).
(c) Calculate the electric field a distance \( R \) from the center if \( R < R_1 \).

\[
\mathbf{E} \text{ is spherically symmetric,}
\]
\[
\mathbf{E} \cdot 4\pi R^2 = \frac{2\cdot 9_i}{\varepsilon_0}
\]

\[a) \quad \mathbf{E} = \frac{+6 - 9}{4\pi \varepsilon_0} = \frac{-3\mu C}{4\pi \varepsilon_0}
\]

\[b) \quad \mathbf{E} = 0
\]

\[c) \quad \mathbf{E} = \frac{-9\mu C}{4\pi \varepsilon_0}
\]