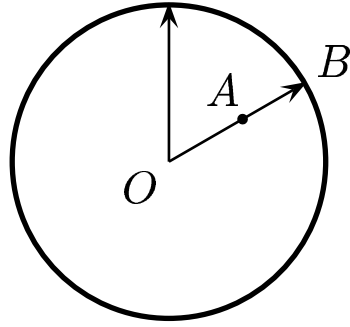


Given a uniformly charged sphere with a total charge Q and a radius R . It can be shown that the electric field $E = \frac{\rho r}{3 \epsilon_0}$.



Find the potential difference ΔV between A , where $OA = r < R$ and B , the point along the same radial line on the surface of the sphere.

- A) $\Delta V = - \int_R^r E dr$
B) $\Delta V = \int_R^r E dr$
C) $\Delta V = E(R - r)$
-

$\Delta V = -E \cdot \Delta s$. For the present case E depends on r . So the potential difference must be evaluated through an integral. By inspection, answer **A** gives the desired positive potential difference.

Answer **A**.