

Special Problem 5-4.7

A hollow conducting sphere of radius **3 meters** is centered at the origin. Every point on this sphere has an electric scalar potential of **7.0 Volts**.

Another hollow conducting sphere of radius **1 meter** is likewise centered at the origin. Every point on this sphere has an electric scalar potential of **-5.0 Volts**.

The region between the spheres (i.e., $1.0 < r < 3.0$) is filled with **free charge**, with a density of:

$$\rho_v(\vec{r}) = -4\epsilon_0 r$$

Determine the **electric potential function** $V(r)$ in the region between the spheres.

