Assignment 10

Physics 321
Electrodynamics I

Due on Friday, September 27th, 2024

Class date: September 25th 2024.
Reading: pp. 85–88.

Problem 7

For your solution to Griffiths 2.18 (Problem 2 of Assignment 8), find the potential for this example, and make a plot of $V(y)$ (set the zero of the potential to $y = 0$).

Problem 8

The electric field inside of a sphere of radius R is $\mathbf{E}_{\text{in}} = \alpha r^2 \hat{\mathbf{r}}$, and outside the sphere, it is $\mathbf{E}_{\text{out}} = \alpha R^4/(2r^2)\hat{\mathbf{r}}$. What is the charge density, ρ inside the sphere, and what is the surface charge density, σ, on its surface? What is the total charge of the sphere (due to both ρ and σ)?