Electric Potential Practice Problems

1) Two conducting charged spheres of radius 3 cm and 5 cm respectively are connected by a wire until their potentials equalize to 1.5V. If the larger sphere had an initial potential of 0.8V, find the initial and final charge densities of each sphere.

2) Given the voltage $V = yx^2 - \frac{1}{z}$ find the electric field at (0, 1, 2).

3) Consider a solid non-conducting sphere with uniform charge distribution $0.5 \times 10^{-8} C/m^3$ and radius R. Graph its voltage at r < R and r > R where r is the distance from the center of the sphere.

Chapter 22 Exercises and Problems from Richard Wolfson's Essential University Physics (2015, Pearson):

Section 22.1 Electric Potential Difference: 15, 20 & 21.

Section 22.2 Calculating Potential Difference: 26 & 27.

Section 22.3 Potential Difference and the Electric Field: 29 & 30.

Section 22.4 Charged Conductors: 32.

Problems: 38, 39, 40, 43, 48, 75