

1. Find the general solution to Laplace's equation for the case where the potential V depends only on

(a) r in spherical polar coordinates **[3 points]**

(b) s in cylindrical coordinates **[3 points]**

2. Calculate W for a sphere of radius R with frozen-in uniform polarization \mathbf{P} (Griffiths Ex. 4.2)

(a) using Griffiths Eq. 4.55 **[4 points]**

(b) using Griffiths Eq. 4.58 **[3 points]**

(c) Comment on the meaning of the results and their discrepancy **[1 points]**