Physics 505 Electricity and Magnetism Fall 2003

Prof. G. Raithel

Problem Set 5

Due date: Thursday, October 16, 7PM (at makeup lecture).

Problems will be collected and graded. You may bring your homeworks to class or drop them in my mailbox in front of the Physics Department office. No late homework will be considered.

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1. A cylindrical surface with radius a and infinite length in the z-direction carries a surface potential $V(z, \phi)$. Find a series solution for the potential anywhere **outside** the cylinder. Provide an integral solution for the expansion coefficients. There are no charges in the volume of interest.

2. Jackson, Problem 3.17

3. Jackson, Problem 3.23

Use Green's function expansion techniques. For the second line, note Eq. 3.147.