

Physics 230

Homework Set 11

Due Date: Thursday October 22, 2015

1. Calculate the expression for electric potential at a point (r, θ) from the knowledge of electric potential on the axis of symmetry (along z axis) at a distance r from the center of the charge distribution system given.
 - a. Ring of Charge Q with radius a placed in xy plane with its center at origin.
 - b. Disk of charge Q with radius a placed in xy plane with its center at origin.
 - c. An electric dipole positioned on the z axis with its dipole moment along positive z axis and its center at the origin ($+q$ at $z = a$ and $-q$ at $z = -a$).
2. Calculate the integral $\int dx x^4/(x^6+1)$ from zero to infinity.

Reading Assignment: (Ch. 15, Legendre Functions)

List of pages: 727 - 730