Classical Electrodynamics (Physics course 503)

Problem set #1

Due date: 6pm, Mar 06 (Tue), 2018

Submission: HW box in physics building.

1. Jackson 1.1

2. Jackson 1.3

3. Jackson 1.4

4. Jackson 1.6

5.

(a) Find the field due to the three charges +q at -d, -2q at the origin, and +q at + d in first nonzero approximation for large r/d*.* This is called an *axial quadrupole field.*

(b) Find a singular charge density that produces an axial quadrupole field.

(c) What is the force and torque on an axial quadrupole in an external field?