

Physics 3201

Problem Set 9

Due: Thursday, October 31. Solutions will be posted at mid-day on Friday, November 1.

Notes: This problem set covers Section 3.3 of Griffiths, and parts of Sections 3.4 and 4.1. Please read them, then continue with Chapter 4, which is relatively short.

1. (15 points) Griffiths problem 3.19 (Problem 3.18 in 3rd Ed.). Note that you need to use the A_ℓ 's inside the sphere, and the B_ℓ 's outside it.
2. (15 points) Griffiths problem 3.20 (Problem 3.19 in 3rd Edition). Be sure to take advantage of Eq. (3.83).
3. Griffiths problem 3.27 (Problem 3.26 in 3rd Edition). The idea is just to keep moving through Eq. (3.95) until you find the lowest non-zero term, and evaluate it.
4. Griffiths problem 3.33 (Problem 3.31 in 3rd Ed.).
5. Griffiths problem 4.6. In addition to the stated question, find the work needed to remove the dipole to infinity.

Honors: Griffiths problem 3.52 (Problem 3.45 in 3rd Ed.), parts (a), (b), and (c). We will meet next on November 8 at 1:30 PM.