*DUE: TUESDAY, FEBRUARY 3, 2026*

1. Jackson, problem 11.10

2. Jackson, problem 11.13

3. Jackson, problem 11.15

   *HINT*: You may assume that the relative velocity of the reference frame, in which the electric and magnetic fields are parallel, points in the positive $z$ direction. After completing the problem, discuss whether this assumption provides a unique solution to Jackson, problem 11.15 (or whether one can boost in another direction and find that the electric and magnetic fields are parallel in the boosted reference frame).

4. Jackson, problem 11.18

5. Jackson, problem 11.22

6. Jackson, problem 11.28 (Note: in part (b), Jackson meant to write "the Lorenz condition" instead of "the Lorentz condition.")

   At the end of part (c), Jackson asks: "where is the effective magnetic dipole moment?" This is a very subtle question, although I am aware of a number of papers in the literature that address this question correctly. Feel free to skip this final question of part (c).