PHYS 333 — Problem Set #18

Reading:

- Chapter 7.1.1
  I did not go over this in class, but you are responsible for this material (see assignment below).
- Chapter 7.1.2
  We discussed some of this material in class.
- Chapter 7.1.3
  This is the heart of the material we discussed in class. There are subtle issues here — read carefully! There is also some vector calculus (that we did not do) proving the general validity of what Griffiths calls the "flux rule for motional emf" (Eq. 7.13). This is on pp. 307–308 — slog through it!

Reading Response: Due Monday November 10 before 9:00 a.m.

1. Is there any material in 7.1.1 that merits discussion in class, or is it all straightforward?
2. In section 7.1.1, two integration paths are discussed: the path in Fig. 7.12a, and the path in Fig. 7.12b. What answer would you get from evaluating the line integral in Eq. (7.9) if you used the open path in Fig. 7.12b instead of the closed path in Fig. 7.12a?
3. Can you follow the derivation of the motional flux rule that starts near the bottom of p. 307 and concludes at the end of p. 308? Should I spend any time on this in class?

Problems: Due Monday November 10

1. Griffiths 7.15
2. Griffiths 7.17
3. Griffiths 7.18 (I suggest changing s in the figure to b to avoid some notational confusion.)

4. Griffiths 7.22

5. Griffiths 7.23 (There is a little bit of a trick in this one.)

6. Griffiths 7.24

7. Griffiths 7.27