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Recitation Notes April 13

Quiz Answer:

The quiz was to do 20.17, which was done in class on Thursday. It nicely illustrates all of the fundamental concepts of this chapter, and so I hope you paid attention to the method rather than just memorized it (it's on Tuesday's notes).

To try and force you to apply, I hope you understood why this answer was an approximation at best: the induced charge on the wheel will create its own magnetic field.

I really don't know what to do today—we've covered or you've done for homework at least one example of every kind of problem in chapter 20 and the homework solutions are available on Blackboard. Thus, I'll ask each class what they'd like to see as far as problems (as far back as you'd like to go), maybe explain how to use the Hall effect formula since there is some confusion there, and then maybe move on to some basic Gauss's law. A lot of people left early because they didn't have any questions on the material, which is fine.

Here is the explanation of the Hall Effect formula's use: there are some misunderstandings with it.

$$\Delta V_{Hall} = \frac{1}{|q|nA} Bh$$

q is the magnitude of the charge carriers on the rectangular prism bar (this is critical for this form of the Hall effect.) n is the number of charge carriers per unit volume, and A is the cross-sectional area with respect to the direction that the current is traveling. In other words, it's the plane perpendicular to the direction the charges are traveling. B is the constant magnetic field the bar is in, and h is the height of the bar. h is the length of the dimension that is perpendicular to both the direction of current and the magnetic field.