

General Physics - E&M (PHY 1308) Lecture

Notes

Quiz008

SteveSekula, 28 October 2010 (created 27 October 2010)

Name: _____

no tags

Date: _____

Rules for the Quiz:

- You are given **5 minutes at the beginning** to look over the quiz quietly and jot some notes on a 3x5-inch notecard. Use this time to think about how to attack the quiz problem(s)
 - You are given **20 minutes in the middle** to discuss the quiz with your teammates. Use this time to develop strategies across the group for attacking the problem(s). You are allowed to keep notes from this discussion on the SAME 3x5-inch notecard.
 - You then have **20 minutes at the end** to work individually (NO MORE DISCUSSION) to solve the problem(s). Use your notes on the 3x5-inch card to help you attack the problem(s)
 - You are allowed to use a calculator
 - Your grade will be determined from the weighted-average of your group and not from your individual performance. The highest grade will be weighted the most, and the lowest the least. Low grades will drag the average down, so it is in your best interest to collaborate during the discussion part of this quiz. All members of your team get the same grade, determined from that weighted average.
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Consider the picture below of an electron ($q = -1.6 \times 10^{-19}\text{C}$) entering a region of magnetic field. The velocity of the electron originally points to the right, with a magnitude of $|v| = 2.0 \times 10^4\text{m/s}$. The magnetic field points into the paper, with a magnitude of $|B| = 0.50\text{T}$.

1. What is the initial direction of the magnetic force on the electron? Indicate this by drawing an arrow, labeled with a capital "F", on the image below.
2. What is the magnitude of the magnetic force on the electron?
3. If this magnetic field is being created by a nearby, horizontal, current-carrying wire located below the picture, what direction is the electric current traveling in the wire? Indicate your answer with an arrow labeled by a capital letter "I".

