

1) Last semester, you used Ampere's law in integral form (the line integral of $\mathbf{B} \cdot d\mathbf{l}$ around a loop is equal to μ_0 times the "current through the loop"). In your own words, under what circumstances does that equation break down, and HOW does it break down (what goes wrong with it)?

2) Griffiths' equation 7.46 gives a formula for the "bound charge" when you have a volume electric polarization \mathbf{P} .

i) In your own words, briefly explain where that equation comes from, or what it means to you (how do you make sense of it?)

ii) What is the difference between "bound charge" and "free charge"? (Is one of them more "real" than the other? Why do we separate them out like this?)

3) Please give us a little constructive feedback. How is the course going for you? Is the tempo ok? Is the homework too easy, too hard? Are our help sessions helpful for you? Is there anything else especially helping, or especially problematic, that we should know about? (Thanks!)