

Homework 4 for September 4 2008
Physics 221 with Professor Jeff Terry

Some comments on homework submission. If you could convert your homework to pdf format before grading, this would save me a step and earn you my gratitude. If you do not have a PDF converter there is free software at primopdf.com. Further, if you could name your file using the convention to follow I would be greatly appreciative:
LastName, FirstName HW#.pdf

A few students, on previous homeworks, have given answers such as “ $-9 \times 10^{51} \text{N}$ Attractive force” for a force of magnitude $9 \times 10^{51} \text{N}$ that is attractive. A negative attractive force is a repulsive force – the negative sign reverses the direction of the vector. I have been lenient in grading this sort of error, taking only a quarter point, but in the future I will consider that “wrong direction”. Please be careful with signs.

1. An electron moving through an electric field is observed to have an acceleration of $1.0 \times 10^{16} \text{ m/s}^2$ in the x direction. What must be the magnitude and direction of the electric field that produces this acceleration?
2. An electron experiences an electric field of 10^{14} N/C . Neglecting other influences, what is the magnitude of the acceleration of the electron?