Physics 1214 - General Physics II

Quiz #8 - 2013.02.06

Solutions

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1. Given two charged particles, one with charge q, and another with charge $2q$, both at rest. Which particle experiences more force due to a magnetic field?

Neither, the magnitude of the force, denoted F, is given by $F = |q|\, v_\perp B$. Thus if $v = 0$, then $v_\perp = 0$ as well. Thus, $F = 0$ for both particles.

2. Does the right-hand rule apply to both positive and negative charges? If not, how does it change?

No, the right-hand rule only applies to positively charged objects. To modify for the negatively charged objects, we simply perform the right-hand rule, and then reverse the final direction of the force.