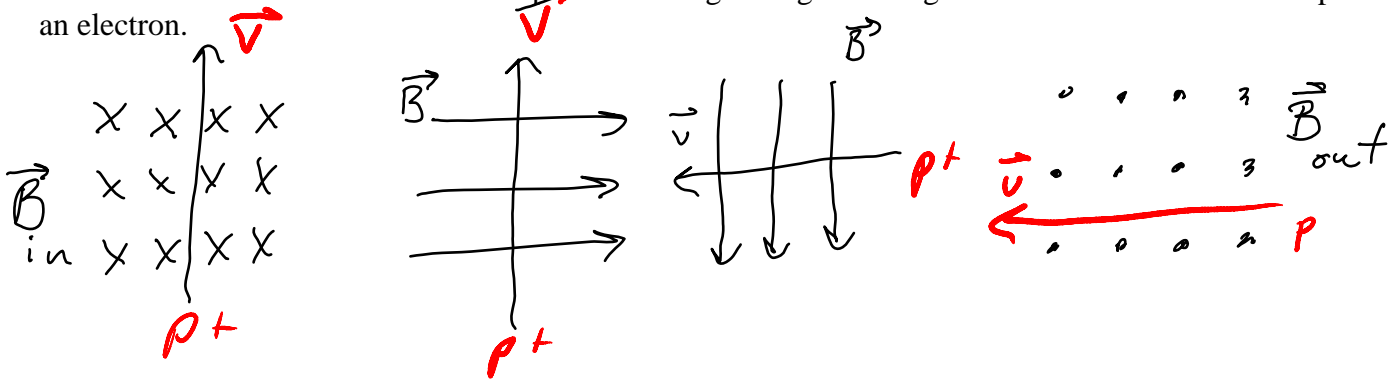
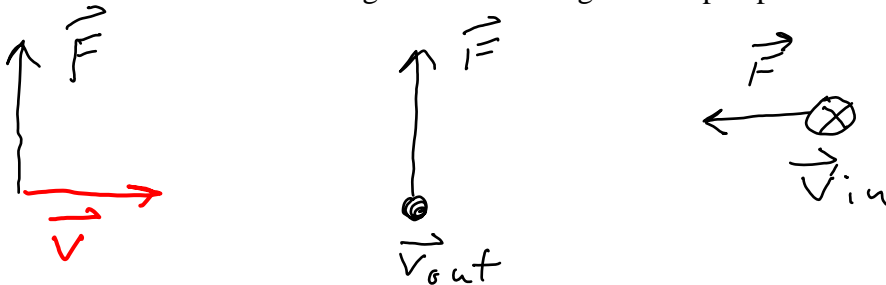


1. An electron gun (cathode ray) is fired into a magnetic field that is directed straight downward. Find the direction of the force exerted by the field on an electron going: horizontal and due north, horizontal and 30° west of north, due north but 30° below horizontal, straight up.

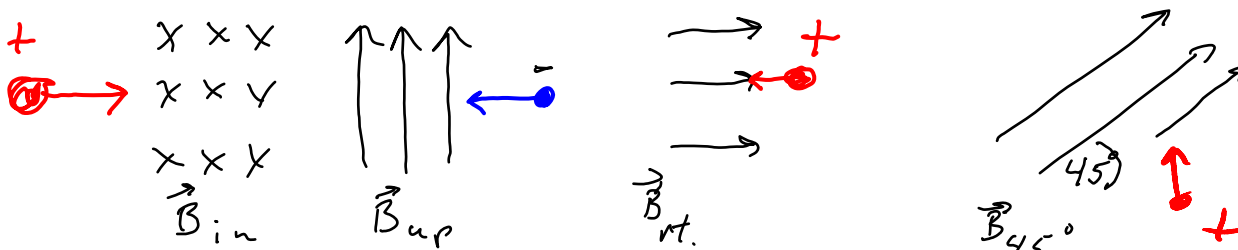
2. Find the direction of the force on a proton moving through the magnetic fields shown below. Repeat with an electron.



3. Find the direction of the magnetic field acting on an alpha particle moving in the situations below.



4. Determine the initial direction of deflection of the charged particles as they enter the magnetic fields below.



5. Find the gravitational, electric, and magnetic forces on an electron traveling east along the equator at 6.00×10^6 m/s. ($B = 50.0 \mu\text{T}$ north, $E = 100 \text{ N/C}$, down)

6. A proton travels at 3.0×10^6 m/s at an angle of 37° with the direction of a magnetic field of .30T in the +y direction. What are the magnitude of the magnetic force on the proton and the proton's acceleration?

