

#flo #inclass

1 | magnetism!

two right rules.

num 1: thumb in direction of current, curl fingers, electric field

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perpendicular current and magnetic field

Screen Shot 2021-11-11 at 10.48.57 AM.png neg charge particle will move in a circle clockwise, pos charge anti-clockwise

force on moving charge in a magnetic field $\vec{F} = q\vec{V} \times \vec{B}$ q = charge V = velocity of charge B = magnetic field strength

$$q = 1.6 * 10^{-19} \quad \vec{b} = 5 * 10^{-5} T \quad \vec{V} = 2000 \frac{m}{s} \quad (1.6 * 10^{-19}) * 2000 \times 5 * 10^{-5} = 1.6 * 10^{-20}$$

centripital force :: force acting to center force to curve something is given by $F_c = \frac{mv^2}{R}$ solve for R: $R = \frac{mv^2}{F_c}$

mass of a proton: $1.67 * 10^{-27}$

$$\text{plug in: } R = \frac{1.67 * 10^{-27} 2000^2}{1.6 * 10^{-20}} = 0.418 m$$