

Question 34241

We are given $q=14\text{ C}$, $B=0.5\text{ T}$, $v=10\frac{\text{m}}{\text{s}}$. If a charge is placed into magnetic field, it experiences the Lorentz force: $\vec{F}_L=q[\vec{v},\vec{B}]$. The modulus of this force in case if \vec{v} and \vec{B} are perpendicular is $F_L=qvB$. Hence, given these values, obtain $F_L=14\text{ C}\cdot 10\frac{\text{m}}{\text{s}}\cdot 0.5\text{ T}=70\text{ N}$ - this is the force exerted on charge by magnetic field.