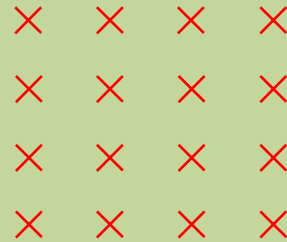


CONCEPT: CIRCULAR MOTION IN MAGNETIC FIELDS

- Remember: Magnetic Force on a moving charge is ALWAYS perpendicular (90°) to its velocity (RHR).

- Because of this, moving charges in a Magnetic Field experience CIRCULAR Motion:

$$\rightarrow \Sigma \mathbf{F} = \mathbf{ma}:$$



EXAMPLE: In an experiment, an electron enters a uniform 0.2 T magnetic field directed perpendicular to its motion. You measure the electron's deflection to have a circular arc of radius 0.3 cm. How fast must the electron be moving?

- If a charge moves PERPENDICULAR to the Magnetic Field $\rightarrow$ _____
- If a charge moves PARALLEL to the Magnetic Field $\rightarrow$ _____
- If a charge moves AT AN ANGLE to the Magnetic Field $\rightarrow$ _____

- Remember: Work done by ANY Force $\rightarrow W_F = F \Delta x \cos\theta$
- Work done by Magnetic Force on a moving charge $\rightarrow W_F =$