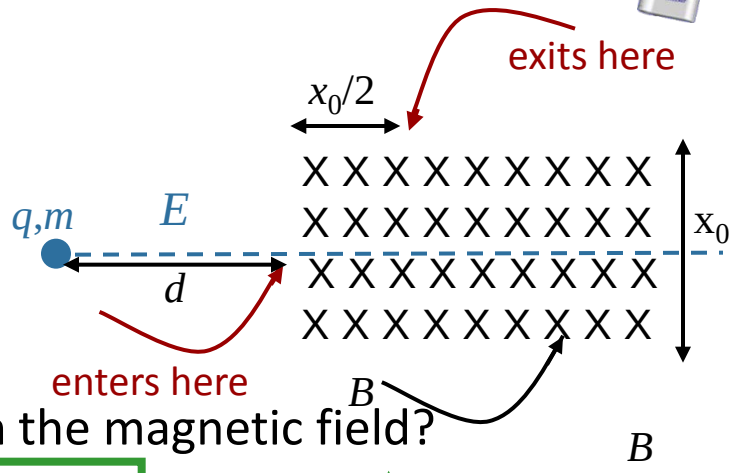
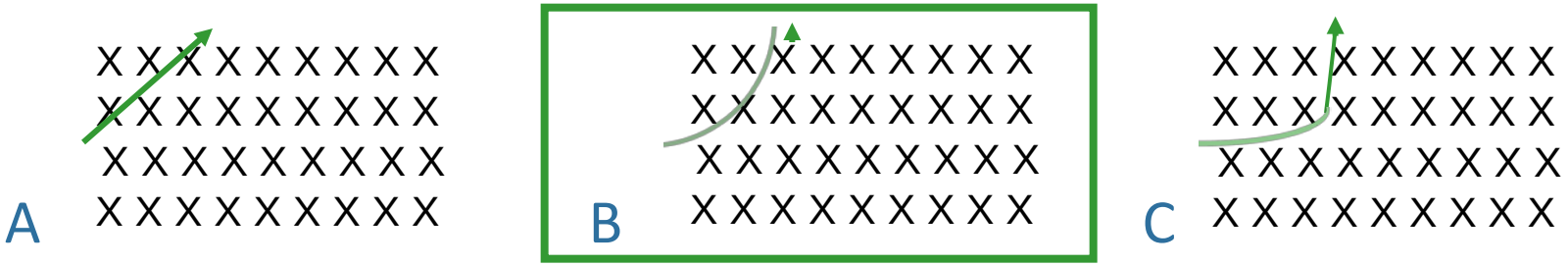
Calculation

A particle of charge q and mass m is accelerated from rest by an electric field E through a distance d and enters and exits a region containing a constant magnetic field B at the points shown. Assume q,m,E,d, and x_0 are known.



What is B? $v_o = \sqrt{\frac{2qEd}{m}}$

What is the path of the particle as it moves through the magnetic field?



Why?

Path is circle!

Force is perpendicular to the velocity

Force produces centripetal acceleration

Particle moves with uniform circular motion