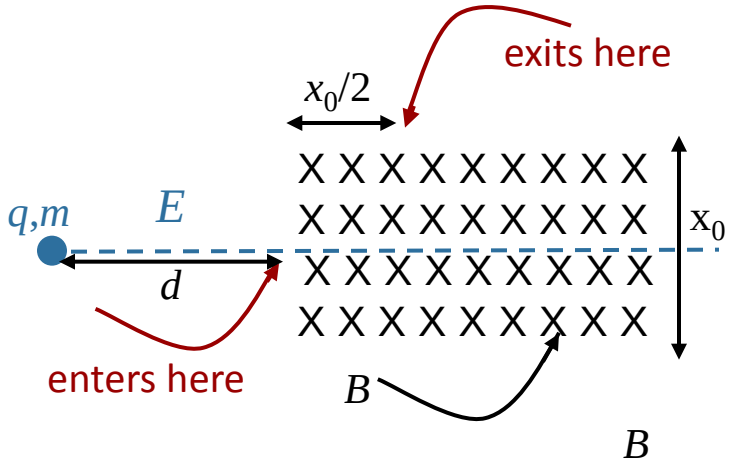
Calculation

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?



Strategic Analysis

Calculate v, the velocity of the particle as it enters the magnetic field

Use Lorentz Force equation to determine the path in the field as a function of B

Apply the entrance-exit information to determine B

Let's Do It !