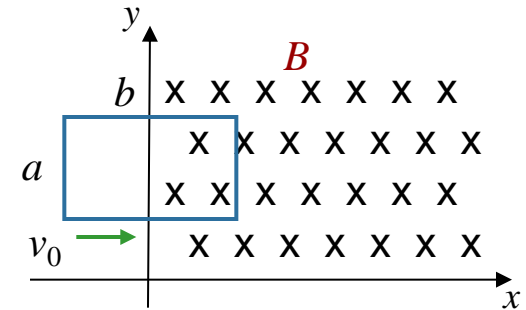


Calculation

A rectangular loop (height = a , length = b , resistance = R , mass = m) coasts with a constant velocity v_0 in $+x$ direction as shown. At $t = 0$, the loop enters a region of constant magnetic field B directed in the $-z$ direction.



What is the direction and the magnitude of the force on the loop when half of it is in the field?

Conceptual Analysis

Once loop enters B field region, flux will be changing in time
Faraday's Law then says emf will be induced

Strategic Analysis

- Find the emf
- Find the current in the loop
- Find the force on the current