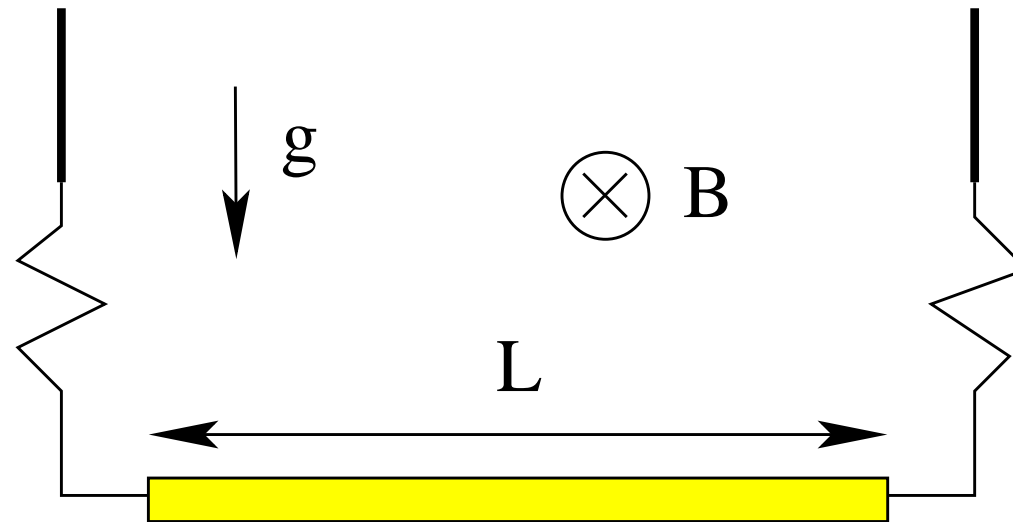


Magnetic Force Application (1)



A wire of length $L = 62\text{cm}$ and mass $m = 13\text{g}$ is suspended by a pair of flexible leads in a uniform magnetic field $B = 0.440\text{T}$ pointing in to the plane.

- What are the magnitude and direction of the current required to remove the tension in the supporting leads?



Magnetic Force Application (2)

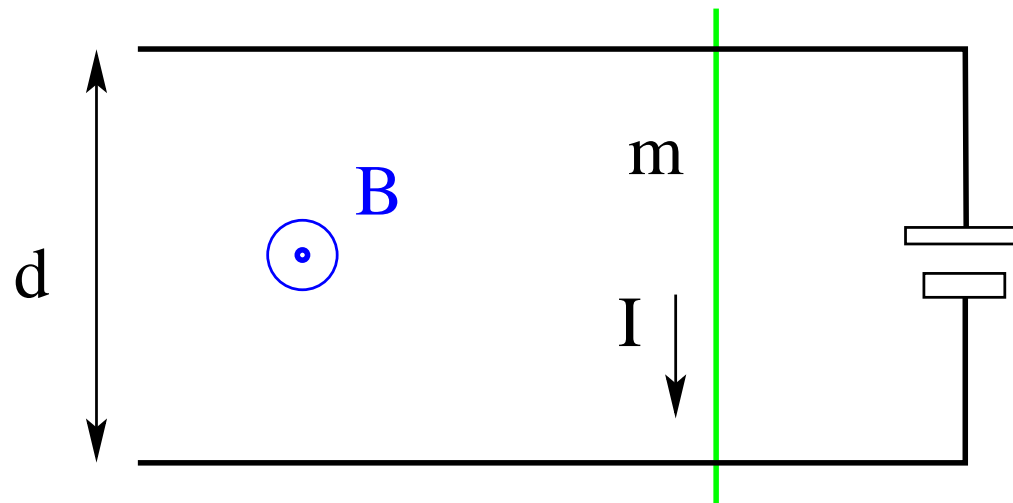


A metal wire of mass $m = 1.5\text{kg}$ slides without friction on two horizontal rails spaced a distance $d = 3\text{m}$ apart.

The track lies in a vertical uniform magnetic field of magnitude $B = 24\text{mT}$ pointing out of the plane.

A constant current $I = 12\text{A}$ flows from a battery along one rail, across the wire, and back down the other rail. The wire starts moving from rest at $t = 0$.

- Find the direction and magnitude of the velocity of the wire at time $t = 5\text{s}$.



Magnetic Force Application (5)



Inside the cube there is a magnetic field \vec{B} directed vertically up.

Find the direction of the magnetic force experienced by a proton entering the cube

- (a) from the left,
- (b) from the front,
- (c) from the right,
- (d) from the top.

