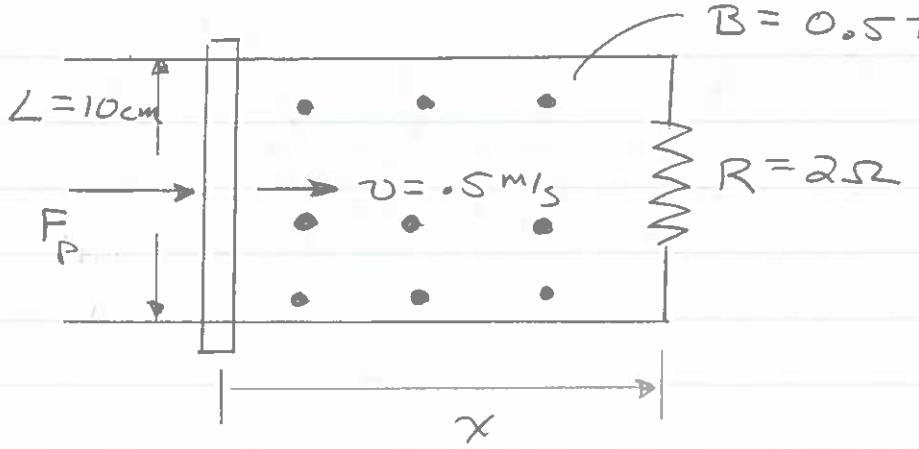


Find induced EMF & Current

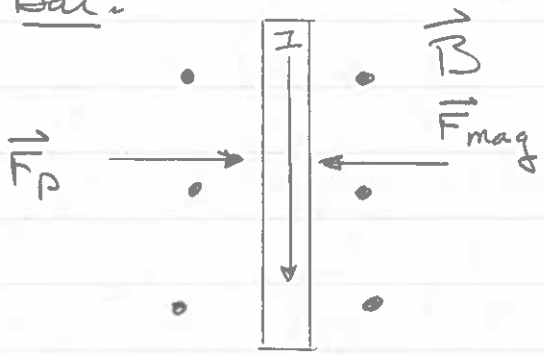
$$\mathcal{E} = \left| \frac{d\Phi_m}{dt} \right| = \left| \frac{d}{dt}(BLx) \right|$$

$$\mathcal{E} = BL\frac{dx}{dt} = BLv$$

Now: $I = \frac{\mathcal{E}}{R} = \frac{BLv}{R} = \underline{0.0125\,A}$

Direction: Flux is decreasing
$\Rightarrow$ $\vec{B}_{in}$ reinforces $\vec{B}$
$\Rightarrow$ CCW

Bar:



For v = const.

$F_p = F_{mag} = |I\vec{L}\times\vec{B}|$

$= ILB$

$\therefore F_p = \underline{6.25\times10^{-4}\,N}$

Power supplied by F_p $\quad P_F = F_p v = 3.125 \times 10^{-4} W$

Power dissipated in resistor $\quad P_R = I^2 R = 3.125 \times 10^{-4} W$