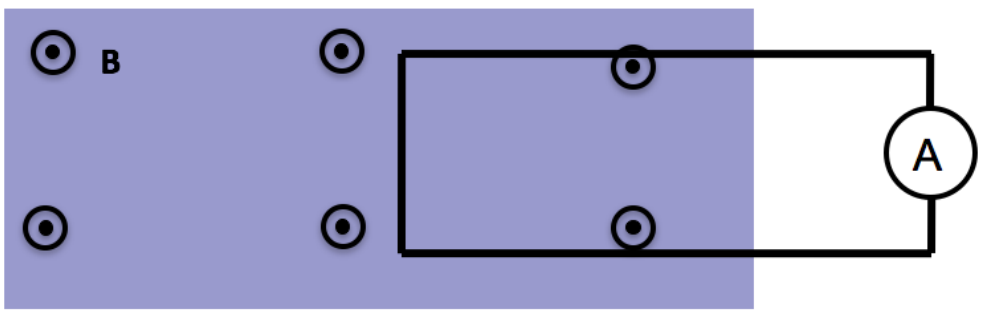
Consider two situations:

1) Loop moves to right with speed $|v|$

2) Magnet moves to left with (same) speed $|v|$



What will the ammeter read in each case? (Assume that CCW current => positive ammeter reading)

A. $I_1 > 0, I_2 = 0$

B. $I_1 = I_2 > 0$

C. $I_1 = -I_2 > 0$

D. $I_1 = I_2 = 0$

E. Something different/not sure

ANNOUNCEMENTS

- Homework 4 (Due Feb 8)
  - Project problem is longer!
- Quiz 2 - Next Friday (Motional EMF)
  - Discuss the differences between:
    - $\mathcal{E} = \oint \mathbf{f} \cdot d\mathbf{l}$ and $\mathcal{E} = -\frac{d\Phi_B}{dt}$
  - Solve a motional EMF problem and discuss the direction of the current
- DC out of town (Feb 4-8)
  - Rachel Henderson will cover
- Film crew will be here on Wednesday

Faraday found that EMF is proportional to the negative time rate of change of B. EMF is also the line integral of a **force/charge**. The force is $\mathbf{f}_q$ in the expression:

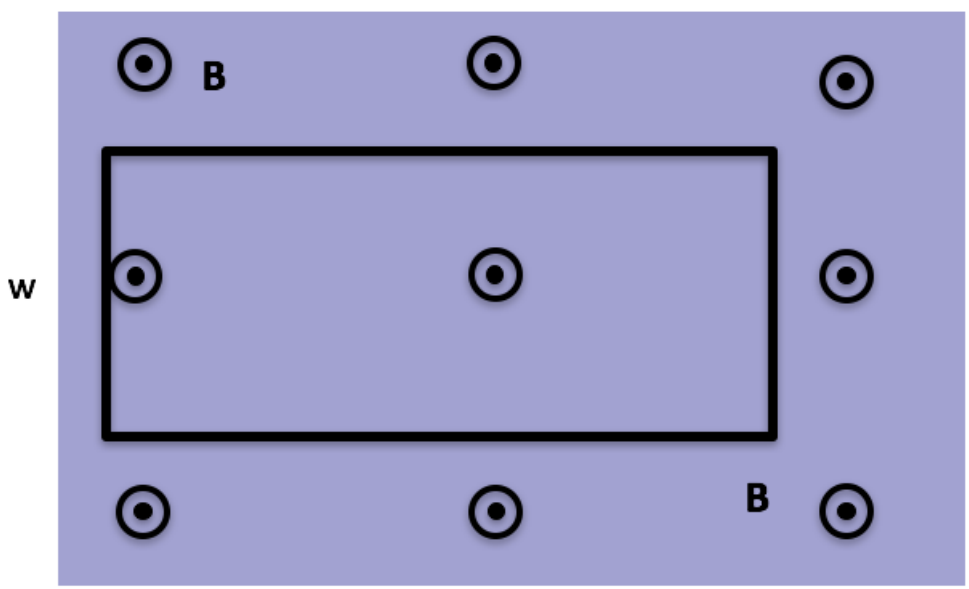
$$\mathcal{E} = \oint \mathbf{f}_q \cdot d\mathbf{l}$$

That force is:

A. the magnetic Lorentz force.
B. an electric force.
C. the strong nuclear force.
D. the gravitational force.
E. an entirely new force.

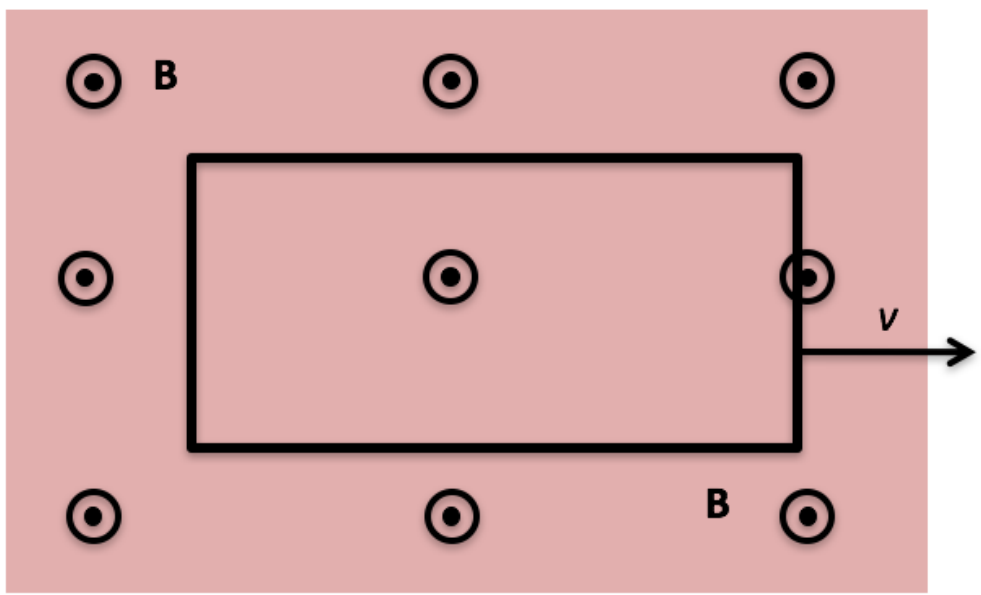
A stationary rectangular metal loop is in a region of uniform magnetic field $\mathbf{B}$, which has magnitude B decreasing with time as $B = B_0 - kt$. What is the direction of the field induced B-field created by the induced current in the loop, in the plane region inside the loop?

A. Into the screen
B. Out of the screen
C. To the left
D. To the right
E. other/??



A rectangular metal loop is moving thru a region of constant uniform magnetic field $\mathbf{B}$, out of page, with constant speed v, as shown. Is there a non-zero emf around the loop?

A. Yes, current will flow CW
B. Yes, current will flow CCW
C. No



A loop of wire is near a long straight wire which is carrying a large current I, which is **decreasing**. The loop and the straight wire are in the same plane and are positioned as shown. The current induced in the loop is:

A. counter-clockwise
B. clockwise
C. zero.