Name _____ Date _____

2Mar07 LeClair

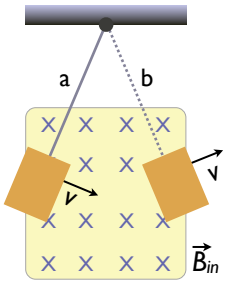
PH 102 Quiz 5: Magnets and Such

1. A magnetic field of 0.3 T is directed perpendicular to the plane of a circular loop of wire of radius 25 cm. Find the magnetic flux through the area enclosed by this loop.

- ◯ 2.3×10^{-2} T
- ◯ 7.1×10^{-3} T·m^2
- ◯ 4.8×10^{-1} T·m^2
- ⊗ 5.9×10^{-2} T·m^2

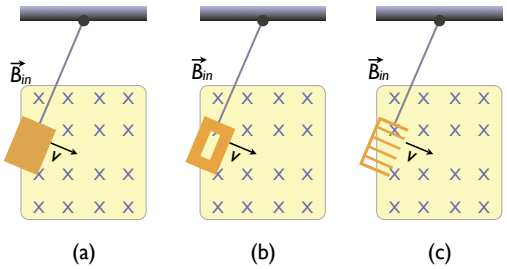
2. A magnet and a non-magnet of the same mass are dropped into copper tubes of equal length. Which takes longer to come out?

- ⊗ The magnet.
- ◯ The non-magnet.
- ◯ It takes the same amount of time.



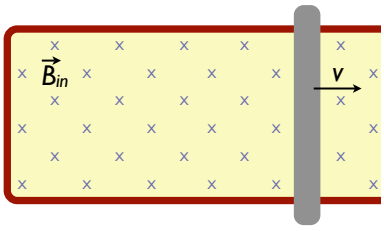
3. A flat metal plate swings at the end of a bar as a pendulum, as shown. When the pendulum is at position **a**, what are the directions of the induced currents and (magnetic) force on the bar, respectively?

- ⊗ Counterclockwise; to the left
- ◯ Clockwise; to the left
- ◯ Counterclockwise; to the right
- ◯ Clockwise; to the right



4. Which pendulum experiences the largest (magnetic) force?

- ⊗ a
- ◯ b
- ◯ c
- ◯ they all experience the same force



5. A conducting bar slides on two fixed conducting rails with, a constant magnetic field pointing into the page. What are the directions of the induced current and the force on the bar, respectively?

- ⊗ Counterclockwise; to the left
- ◯ Clockwise; to the left
- ◯ Counterclockwise; to the right
- ◯ Clockwise; to the right