

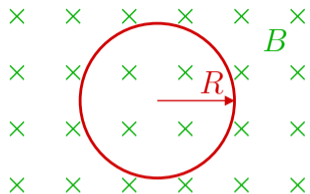
Announcements

- Exam will be released by this evening. Look for an email with information.
- Unit 2 Homework and Objectives sheets available on the Handouts page. Also on the Calendar page.
- Wolfson (vol. 1) Chapter 14 for Thursday's class is available on the Handouts page. You should still have access to Volume 1 if you used the First Day program.
- MCAT Physics session here in Olin 268 this Thursday, Feb. 19, from 7:00-8:00 pm

Lecture 8 — Concept Test 1

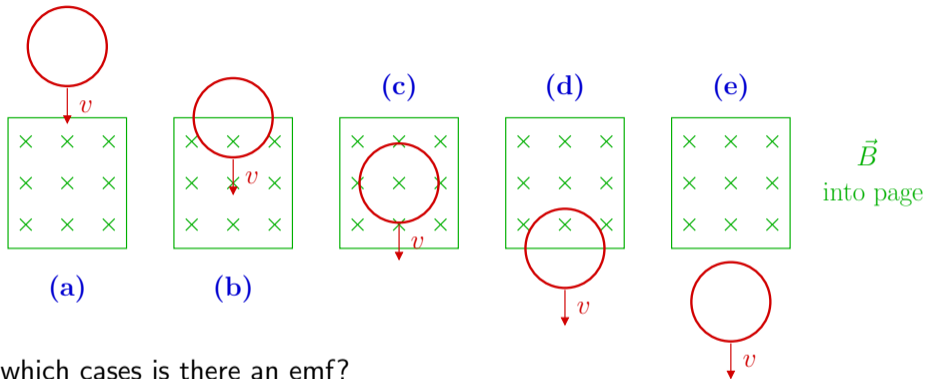
A loop of wire is in a magnetic field, as shown in the diagram. For each of these cases, is there an induced emf and an induced current in the loop?

Answer: **1.** yes, **2.** no



- (a) The magnetic field is strong and constant (not varying).
- (b) The magnetic field is decreasing in strength.
- (c) The field is constant and the coil is somehow shrinking.
- (d) The field is constant and the coil is rotating about a vertical axis.
- (e) The field is constant and the coil rotates about an axis through its center perpendicular to the screen.

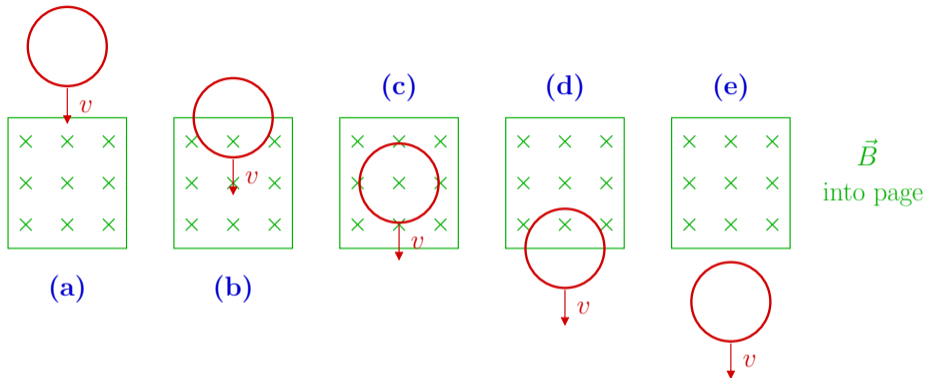
Lecture 8 — Concept Test 2



In which cases is there an emf?

1. a & e
2. b & d
3. c only
4. b, c, & d
5. All of the cases shown
6. None of the cases shown

Lecture 8 — Concept Test 3

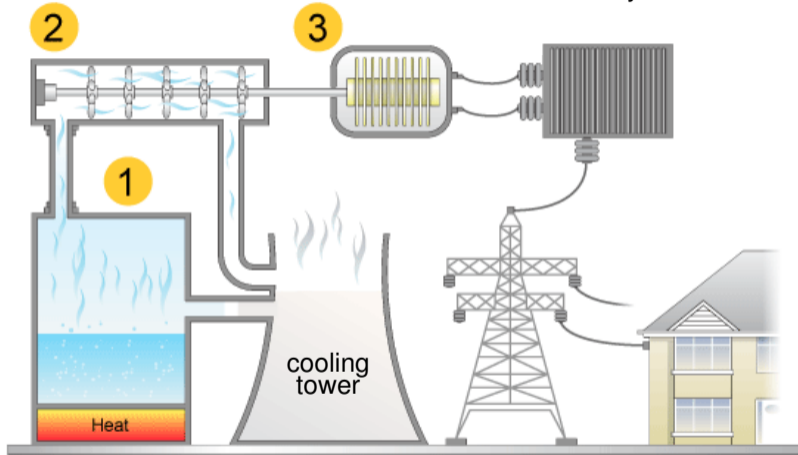


What is the direction of the induced current for cases (b) and (d)?

1. CCW for both
2. CW for both
3. (b) CW, (d) CCW
4. (b) CCW, (d) CW
5. Not enough info
6. Too much info

2. Turbines: steam rushing through causes them to turn

3. Generator: rotating shaft converted to electricity



1. Heat source: boils water.
(burning coal or nuclear)

Cooling tower: dumps heat into atmosphere,
condenses steam back to water.

Lecture 8 — Concept Test 4

What is the direction of the induced eddy current in the plate as the plate enters the region with the magnetic field?

1. Clockwise
2. Counterclockwise
3. There is no current induced in the plate

