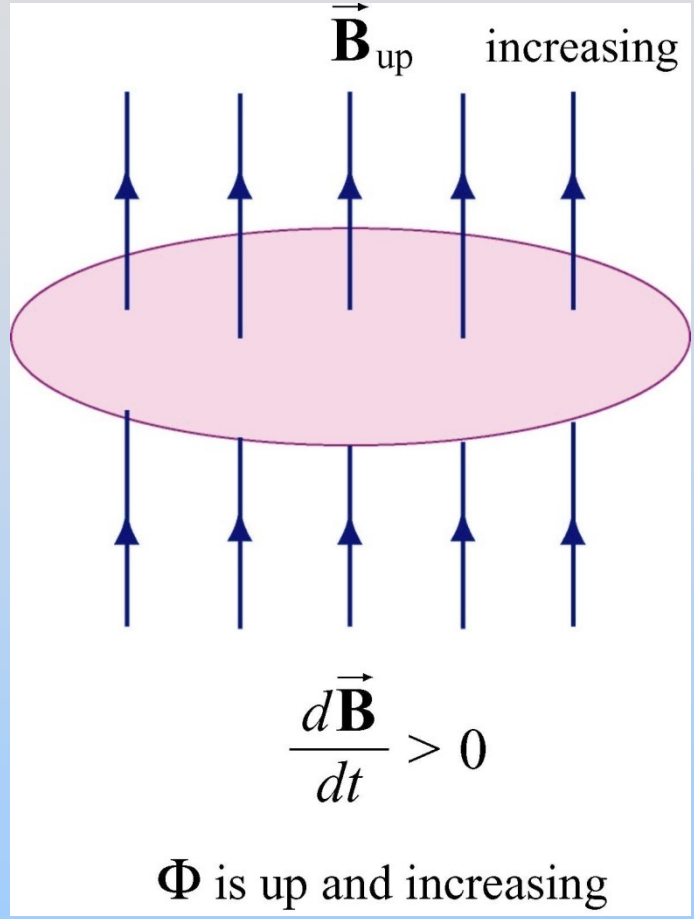
Concept Question: Loop

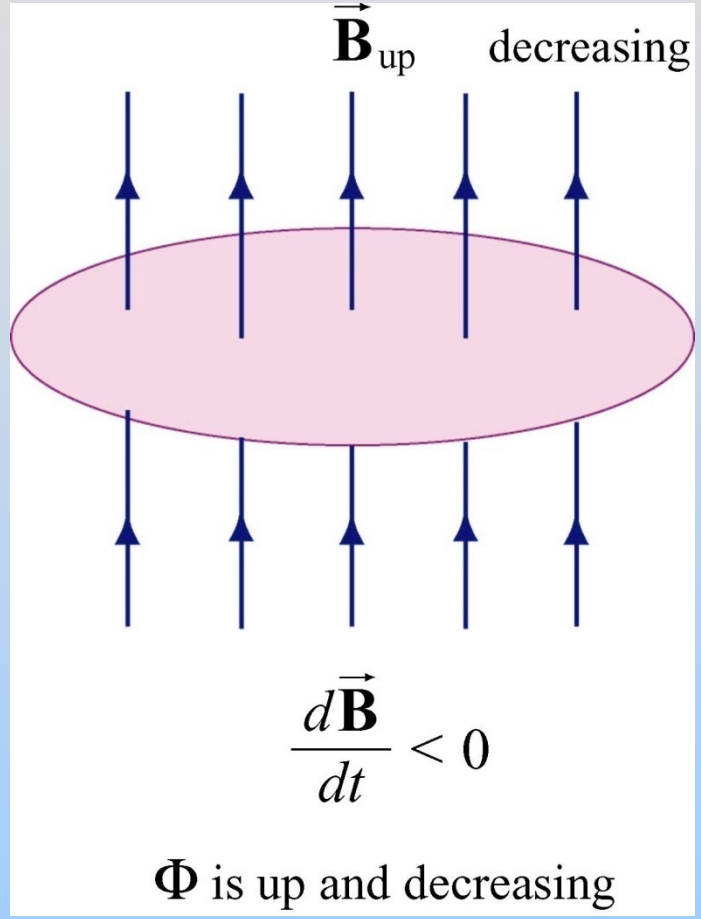
The magnetic field through a wire loop is pointed upwards and *increasing* with time. The induced current in the coil is



1. Clockwise as seen from the top
2. Counterclockwise

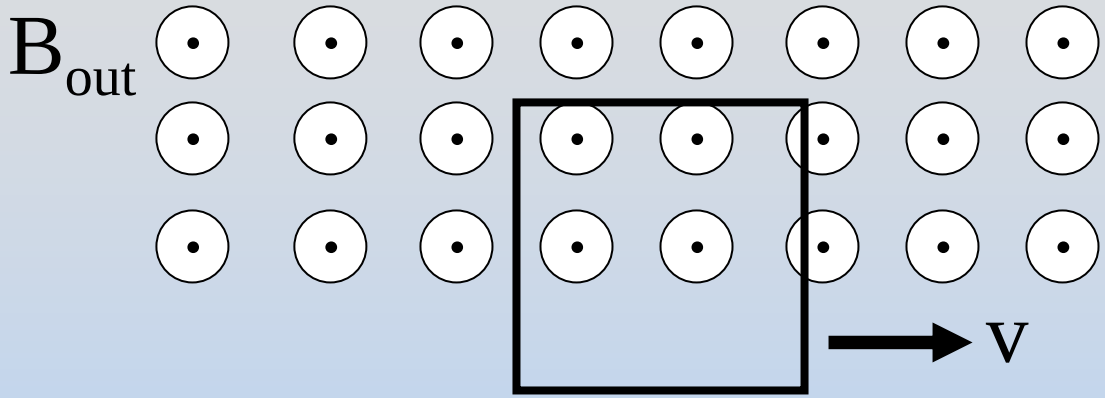
Concept Question: Loop

The magnetic field through a wire loop is pointed upwards and *decreasing* with time. The induced current in the coil is



1. Clockwise as seen from the top
2. Counterclockwise

Concept Question: Loop in Uniform Field

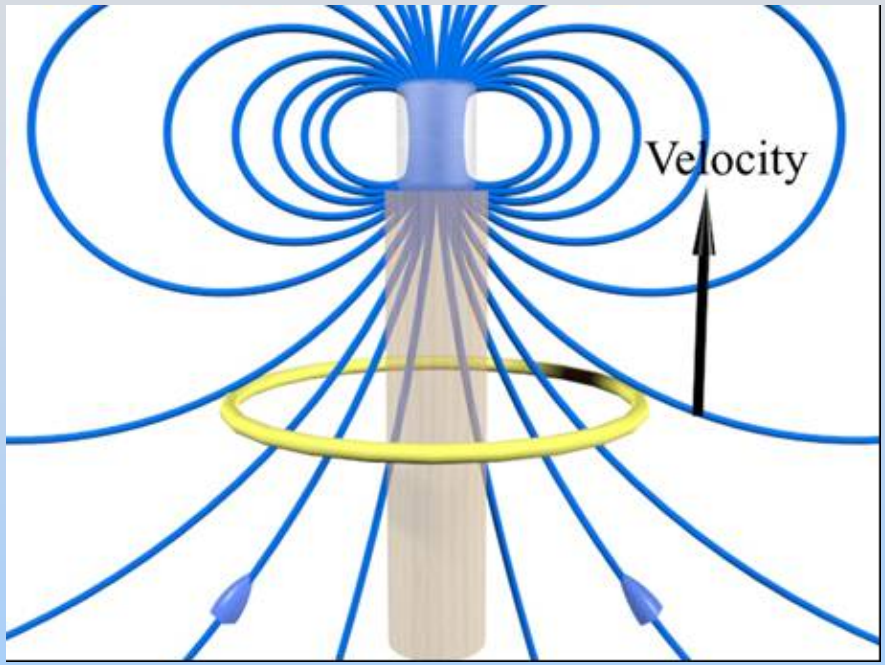


A rectangular wire loop is pulled thru a uniform B field penetrating its top half, as shown. The induced current and the force and torque on the loop are:

1. Current CW, Force Left, No Torque
2. Current CW, No Force, Torque Rotates CCW
3. Current CCW, Force Left, No Torque
4. Current CCW, No Force, Torque Rotates CCW
5. No current, force or torque

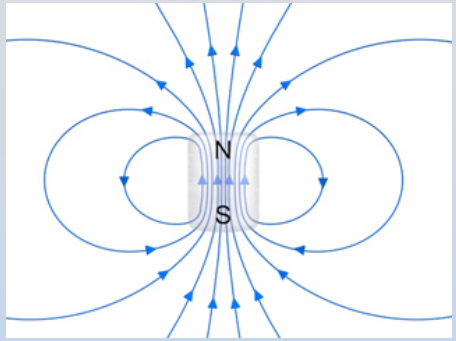
Concept Question: Faraday's Law: Loop

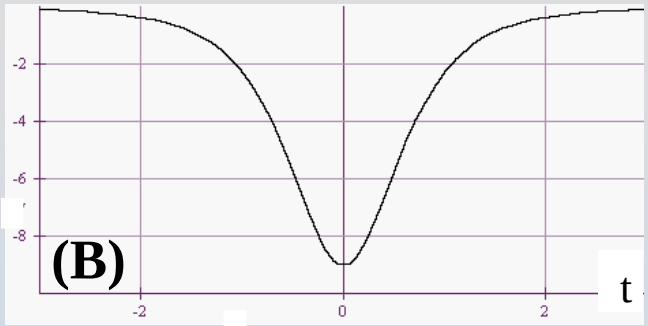
A coil moves up from underneath a magnet with its north pole pointing upward. The current in the coil and the force on the coil:

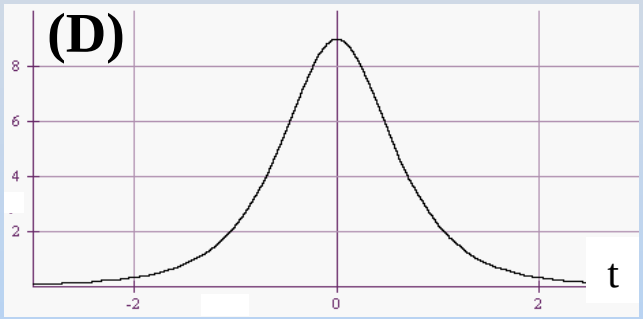


1. Current clockwise; force up
2. Current counterclockwise; force up
3. Current clockwise; force down
4. Current counterclockwise; force down

Concept Q. : Flux Measurement



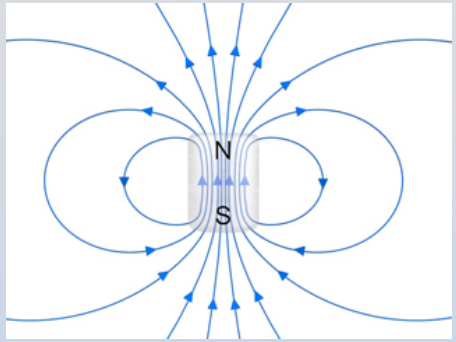


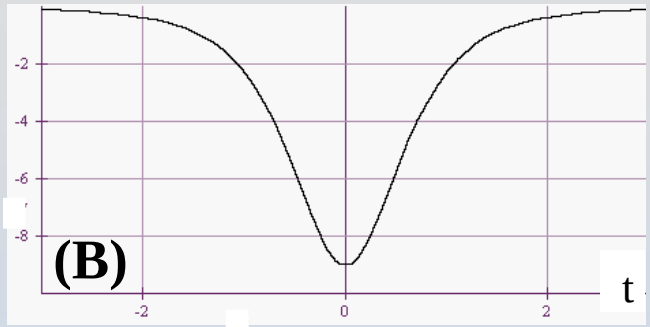


Moving from above to below and back, you will measure a *flux* of:

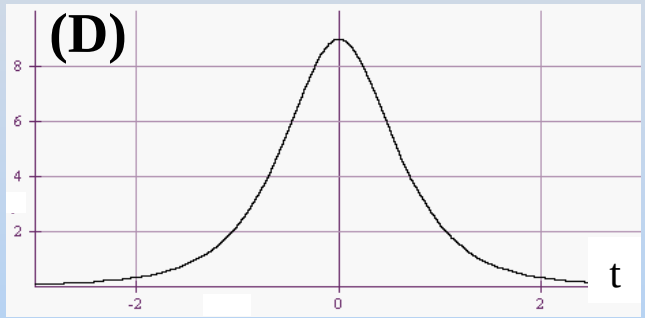
1. A then A
2. C then C
3. A then C
4. C then A
5. B then B
6. D then D
7. B then D
8. D then B

Concept Q.: Current Measurement





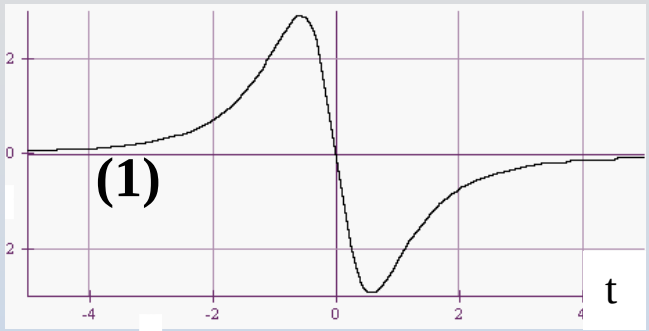
NOTE: CCW is positive!

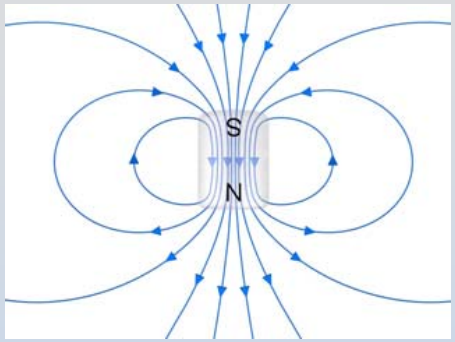


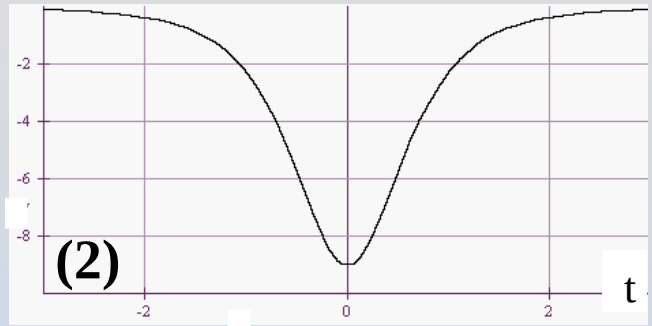
Moving from above to below and back, you will measure a *current* of:

1. A then A
2. C then C
3. A then C
4. C then A
5. B then B
6. D then D
7. B then D
8. D then B

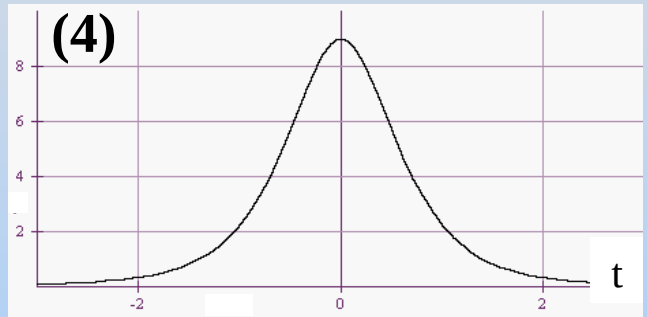
Concept Question: Flux Behavior





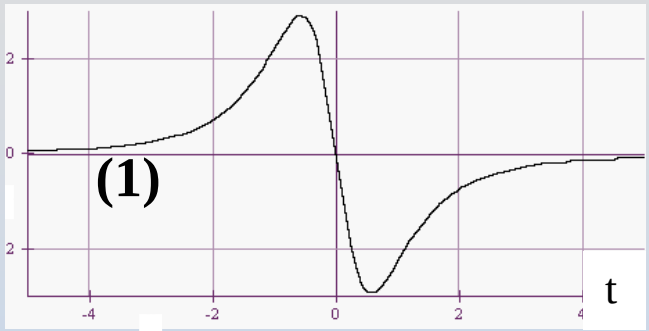


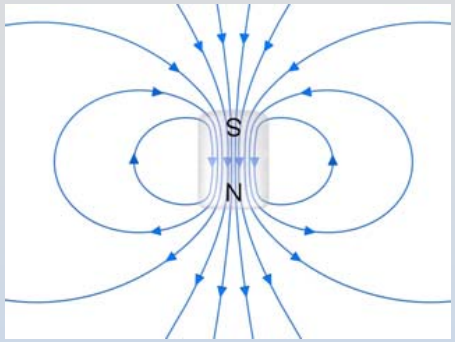
NOTE: Magnet "Upside Down"

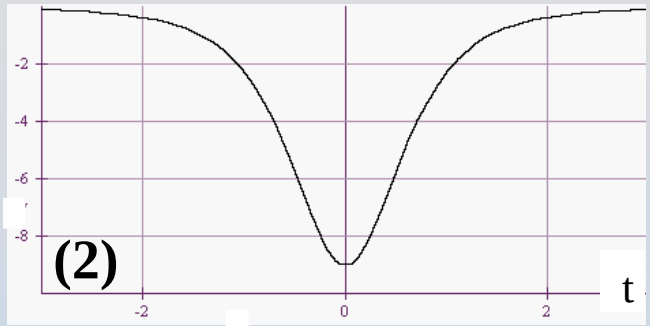


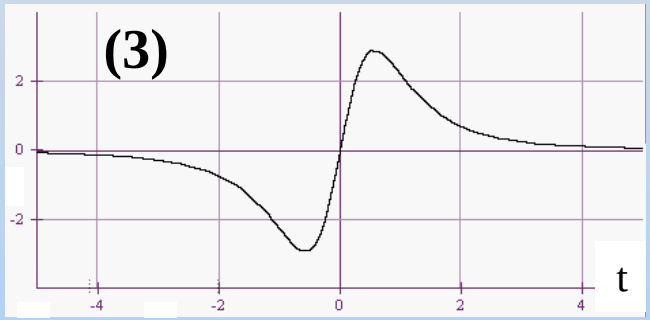
Moving from below to above, you would measure a *flux* best represented by which plot above (taking upward flux as positive)?

Concept Q.: Current Behavior

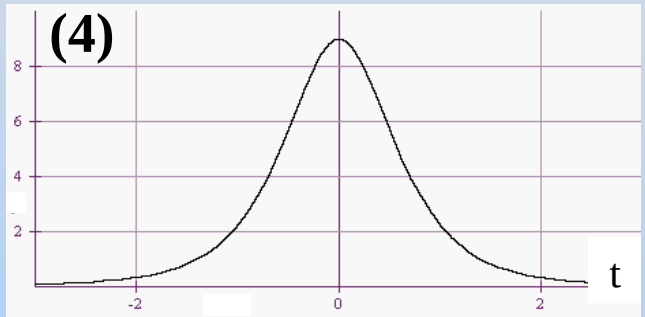






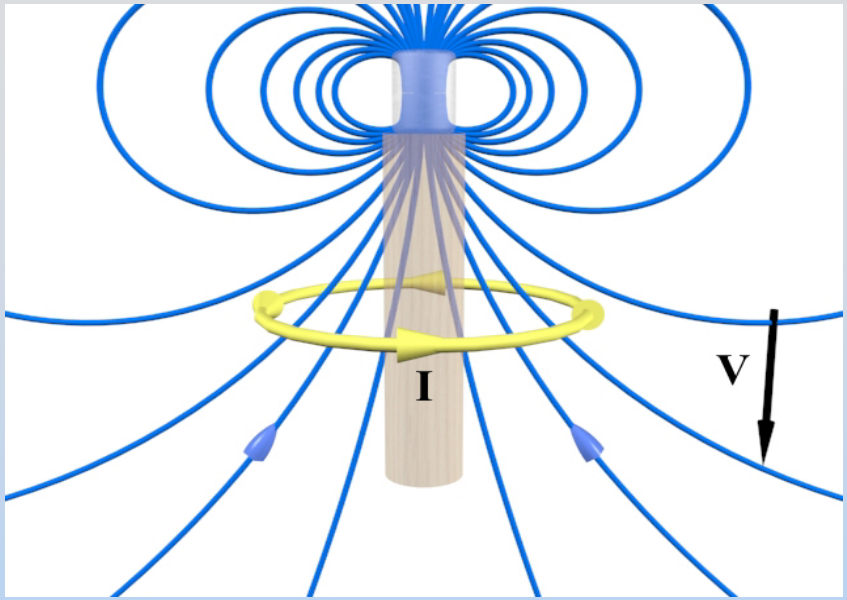


NOTE: Magnet "Upside Down"



Moving from *above* to *below*, you would measure a *current* best represented by which plot above (taking counterclockwise current as positive)?

Concept Q.: Loop Below Magnet



A conducting loop is below a magnet and moving downwards. This induces a current as pictured. The *I ds x B* force on the coil is

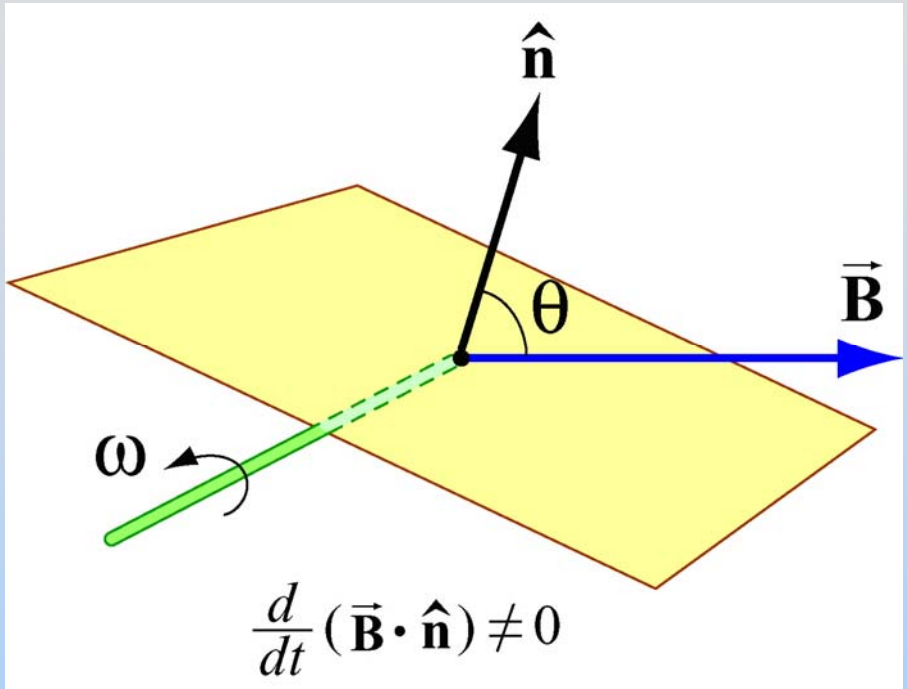
0% 1. Up

0% 2. Down

0% 3. Zero

Concept Question: Generator

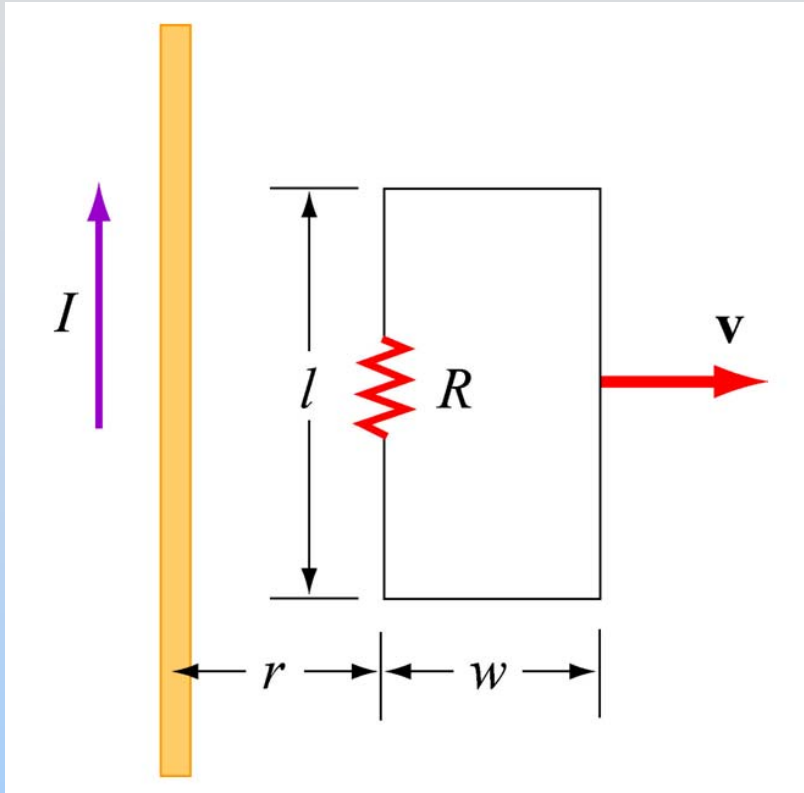
A square coil rotates in a magnetic field directed to the right. At the time shown, the current in the square, when looking down from the top of the square loop, will be



1. Clockwise
2. Counterclockwise
3. Neither, the current is zero
4. I don't know

Concept Question: Circuit

A circuit in the form of a rectangular piece of wire is pulled away from a long wire carrying current *I* in the direction shown in the sketch. The induced current in the rectangular circuit is



1. Clockwise
2. Counterclockwise
3. Neither, the current is zero

8.02SC Physics II: Electricity and Magnetism

Fall 2010