HW due 7/11

Due: 7:00am on Monday, July 11, 2016

To understand how points are awarded, read the Grading Policy for this assignment.

Exercise 29.10

A closely wound rectangular coil of 80 turns has dimensions of 25.0 cm by 40.0 cm. The plane of the coil is rotated from a position where it makes an angle of 43.0 $^\circ$ with a magnetic field of 1.70 T to a position perpendicular to the field. The rotation takes 0.0800 s .

Part A

What is the average emf induced in the coil?

Express your answer with the appropriate units.

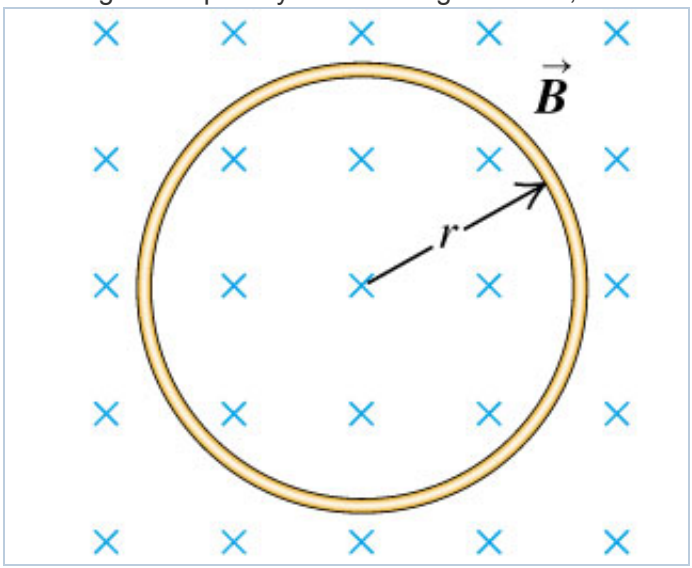
ANSWER:

$\mathcal{E}$ = 54.1 V

Correct

Exercise 29.23

A circular loop of wire with radius 0.0260 m and resistance 0.360 Ω is in a region of spatially uniform magnetic field, as shown in the following figure. The magnetic field is directed into the plane of the figure. At t = 0, B = 0. The magnetic field then begins increasing, with $B(t) = (\ 0.360\ \mathrm{T/s^3}\ )\ t^3$.



Part A

What is the current in the loop (magnitude) at the instant when 1.12 T ?

Express your answer with the appropriate units.

ANSWER:

$I = 1.36 \times 10^{-2}\ \text{A}$

Correct

Part B

What is the direction of the current in the loop?

ANSWER:

- clockwise
- counterclockwise

Correct

Score Summary:

Your score on this assignment is 100%.
You received 10 out of a possible total of 10 points.