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PHYS 1260, section 001, Fall 2020

Chapter 22 (Homework)

INSTRUCTOR

Joel DeWitt

East Carolina University

Current Score

QUESTION	1	2	3	4	5	6	7	TOTAL SCORE	
POINTS	-3	-2	-2	-1	-1	-1	-4		
								-14	0.0%

Due Date

THU, OCT 22, 2020

11:59 PM EDT

Request Extension

Description

▼

Assignment Submission & Scoring

Assignment Submission

For this assignment, you submit answers by question parts. The

number of submissions remaining for each question part only changes if you submit or change the answer.

Assignment Scoring

Your last submission is used for your score.

1. [-/3 Points]

DETAILS

COLFUNPHYS1 22.P.001.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

A magnetic field of magnitude 0.65 T is directed vertically upward.

(a) Find the magnetic flux through a flat surface of area 22 cm^2 if the surface is vertical.

(b) Find the magnetic flux through a flat surface of area 22 cm^2 if the surface is horizontal.

(c) Find the magnetic flux through a flat surface of area 22 cm^2 if the surface is at angle of 57° with the horizontal.

2. [-/2 Points]

DETAILS

COLFUNPHYS1 22.P.008.

MY NOTES

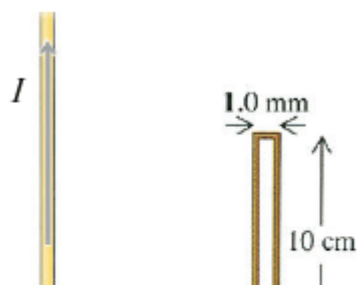
ASK YOUR TEACHER

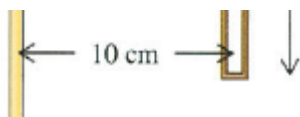
PRACTICE ANOTHER

A small rectangular loop of wire is located close to a long straight wire initially carrying a current $I = 101 \text{ A}$ (see figure below). Find the average emf induced in the loop if the current in the wire reverses direction in a time interval of $\frac{1}{127} \text{ s}$.

magnitude

direction





3. [-/2 Points]

DETAILS

COLFUNPHYS1 22.P.009.

MY NOTES

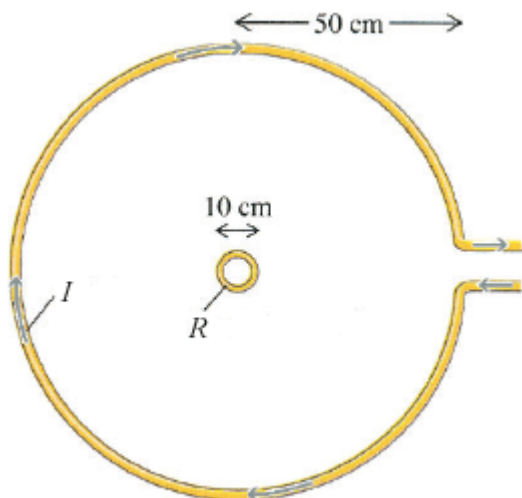
ASK YOUR TEACHER

PRACTICE ANOTHER

A small circular loop of wire of radius 5.0 cm and resistance $R = 1.6 \times 10^{-3} \Omega$ is centered inside a large circular loop of wire of radius 50 cm (see figure below). The larger loop, which initially carries a current $I = 6.0$ A, is cut and its current is reduced to zero over a time interval of 1.1×10^{-6} s. Find the average current in the smaller loop during this time interval. (The magnetic field of the larger loop is approximately constant over the smaller loop.)

magnitude

direction



4. [-/1 Points]

DETAILS

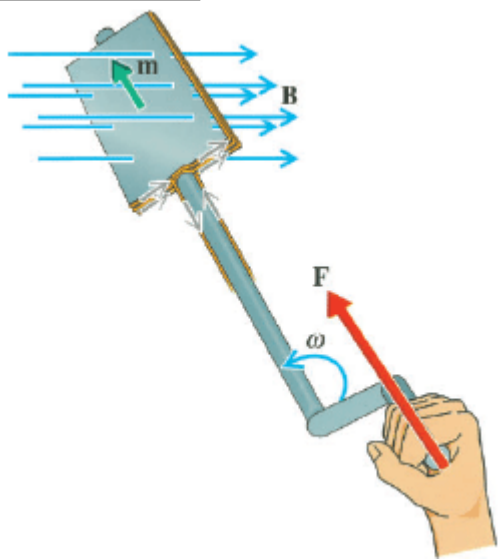
COLFUNPHYS1 22.P.019.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

The self-inductance of the circuit in the figure below is 9.20×10^{-8} H. Find the back emf when the current is increasing at the rate of 2.06×10^7 A/s.



5. [-/1 Points]

DETAILS

COLFUNPHYS1 22.P.020.

MY NOTES

ASK YOUR TEACHER

PRACTICE ANOTHER

Find the cross-sectional area of a 5.3 cm long solenoid with 505 turns and a self-inductance of 38 μ H.

6. [-/1 Points]

DETAILS

COLFUNPHYS1 22.P.027.

[MY NOTES](#)[ASK YOUR TEACHER](#)[PRACTICE ANOTHER](#)

Find the magnetic energy stored by a 5.28 mH inductor when the current through it is 10.2 A.

7. [-/4 Points]

[DETAILS](#)

COLFUNPHYS1 22.P.030.

[MY NOTES](#)[ASK YOUR TEACHER](#)[PRACTICE ANOTHER](#)

The rms current through a light bulb is 0.559 A when the bulb is connected to a standard 120 V rms source.

(a) Find the bulb's resistance.

(b) Find the peak instantaneous current.

(c) Find the peak instantaneous voltage.

(d) Find the average electrical power used by the bulb.

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