First do the following Wiley-Plus assignment: Assignment #30b

After completing the Wiley-Plus, in your homework notebook, complete the following problems:
CH30 Questions # None
CH30 Problems # 40

To check your work, the answers to the odd problems are in the back of the book.
The answers to the even problems are:

#40) $1.0 \times 10^{-7}$ Wb

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**Homework**

*Then* complete the attached worksheets: (Note: the above problems were designed to ensure you have the skills to solve the worksheet problems. It is imperative to your learning of the problem solving technique to do the above problems **BEFORE** attempting the worksheet problems. You are graded on both! Homework notebooks are graded.)
CH-30-B-1:

For each of the equations below,

1) State what each term is in your own words ...
2) What the units of each term are...
3) What is the general use of that equation in your own words?

A. $\oint \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt}$

B. $L = \frac{N\Phi_B}{i}$

C. $L = \mu_0 n^2 \ell A$

D. $\varepsilon_L = -L \frac{di}{dt}$
CH-30-B-2:

A magnet is moved from a position far away from a coil to a position close to the coil, left there for a few seconds and finally returned to a position far away from the coil. The voltage vs. time across the coil and is shown in the first graph. The graph that best represents the flux vs. time in the coil is
An air-core solenoid with 300 turns is 0.25 m long and has a cross-sectional area of 4.00 cm$^2$. If a 15.0-mV self-induced emf exists at some instant across the solenoid, then what is the time rate of change of the current in the solenoid at that instant?

Show all work
A long solenoid has a radius of $6.12 \times 10^{-2}$ m. When a current is passed through its windings, a uniform magnetic field is produced inside it, directed parallel to its axis. By decreasing the current, the strength of the magnetic field inside the solenoid is made to decrease at a rate of $6.50 \times 10^{-3}$ T/s. The magnitude of the induced electric field at a distance of $8.12 \times 10^{-2}$ m from the axis of the solenoid is closest to:

A. $7.50 \times 10^{-5}$ V/m  
B. $9.94 \times 10^{-5}$ V/m  
C. $3.75 \times 10^{-5}$ V/m  
D. $1.50 \times 10^{-4}$ V/m  
E. $3.25$ V/m

Show all work