
PREFLIGHTS LESSON 2 – ELECTROMOTIVE FORCE AND MOTIONAL EMF**LEARNING OBJECTIVES:**

- 1. Define electromotive force in terms of the forces on charges around a circuit.**
 - 2. Describe how emf can be created by moving a conductor through a magnetic field.**
- 1)** Consider problem 7.6 in Griffiths. Briefly describe how you would do this the wrong way by creating a perpetual motion machine.
- 2)** How would you correct your wrong solution from the previous question? You might find it helpful to reference Figure 4.31 and discuss the curl of \mathbf{E} .
- 3)** Consider problem 7.8 in Griffiths. What is the flux of \mathbf{B} through the square loop? What is $d\Phi/dt$ as the loop moves away from the wire?
- 4)** Describe how you would do problem 7.8 in Griffiths without using the flux rule. You might want to look at Equation 7.11.

5) Note: This is a review question from Physics 361. Question ET3-QRT5 from page 71 of *E&M TIPERs: Electricity & Magnetism Tasks* by Curtis J. Hieggelke, David P. Maloney, Stephen E. Kanim, and Thomas L. O’Kuma.

6) What did you find difficult or confusing in the pre-class work? If nothing was difficult or confusing, tell me what you found most interesting. Please be as specific as possible.

7) Document whatever help you received on the preclass work.