PREFLIGHTS   **LESSON 12 – CONSERVATION OF MOMENTUM (CON'T),**
                                ANGULAR MOMENTUM

LEARNING OBJECTIVE:
Determine how angular momentum is conserved in electrodynamics.

1) This link will take you to a description of the Feynman disk paradox. What is the resolution to
the paradox?

2) Study Example 8.4. Suppose that instead of turning off the current, you doubled the current
and also doubled the charge on the cylinders (without exerting an external torque on the system).
Would the cylinders rotate in that case? If so, what would their angular momentum be?

3) Now suppose that in Example 8.4, instead of turning off the current, we double the length of
each of the cylinders, keeping the charge on them the same. We do it in such a way that we don't
exert an external torque on the system. Will the cylinders rotate? Why or why not?

4) *Note: This is a review question from Chapter 7.* On page 207 in Griffiths, it says quite emphatically that "Magnetic forces do no work". Yet, in Chapter 7, an equation is defined for magnetic energy. Presumably, magnetic energy can be changed to mechanical energy, which means that work can be done with magnetic energy. Explain the seeming contradiction between the fact that magnetic forces do no work but there is energy stored in magnetic fields.

5) 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.

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