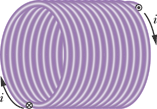
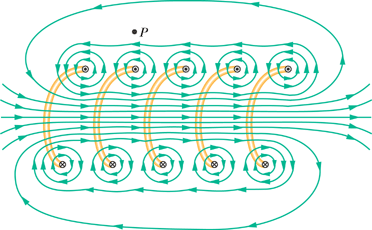
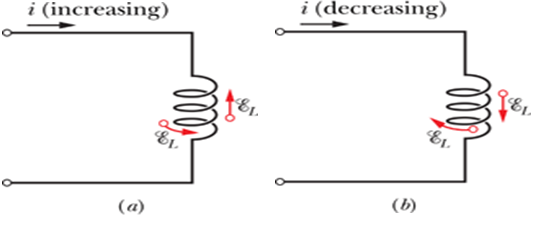
PHYS 212 Inductors and Inductance   
  
 

1. Define inductance and express its SI unit.

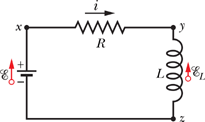
2. Using Faraday’s law of induction show that the self-induced emf is given by:  
 http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c30/math133.gif



3. Show that the inductance per length for a solenoid is given by:  
 http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c30/math125.gif  
 Inductance—like capacitance—depends only on the geometry of the device.

4. Show that the magnetic energy and magnetic energy density are given by:

http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c30/math185.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c30/math203.gif

5. RL circuits:   
 http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c30/math148.gif