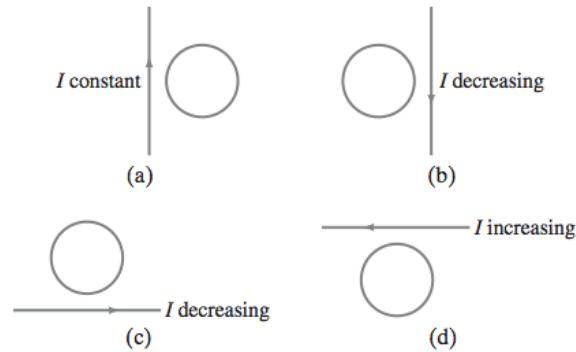# Homework #9
## Due at 6pm on Friday, Apr 17th, 2015

Reading: Chaps 30 and 32.

1. What is the direction of the induced current in the circular loop due to the current shown in each part of the figure above? Explain why.

2. A 600-turn solenoid, 25 cm long, has a diameter of 2.5 cm. A 14-turn coil is wound tightly around the center of the solenoid. If the current in the solenoid increases uniformly from 0 to 5.0 A in 0.60 s, what will be the induced emf in the short coil during this time?

3. A 22.0-cm-diameter coil consists of 30 turns of circular copper wire 2.6 mm in diameter. A uniform magnetic field, perpendicular to the plane of the coil, changes at a rate of 8.65×10^3 T/s. Determine (a) the current in the loop, and (b) the rate at which thermal energy is produced.

4.   (a) If the resistance of the resistor in the figure at right is slowly increased, what is the direction of the current induced in the small circular loop inside the larger loop? (b) What would it be if the small loop were placed outside the larger one, to the left? Explain your answers..
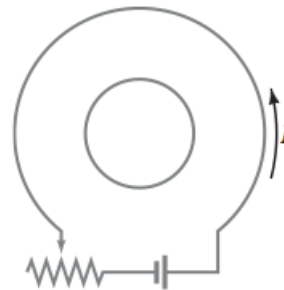
5. HRW Chap 30, P10.
6. HRW Chap 30, P11.
7. HRW Chap 30, P21.
8. HRW Chap 30, P34.
9. HRW Chap 30, P36.