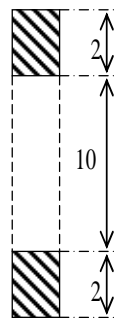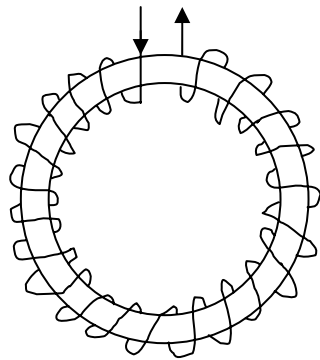Sample test questions:

1. which combination of units (SI) can be used to express the amplitude of the *magnetic permeability of free space*:
   a) kg/C^2
   b) $N \cdot s^2/C$
   c) $kg \cdot m/(C \cdot s^2)$
   d) $kg \cdot m/C^2$
   e) $kg/(C \cdot s)$

2. Which of the following statement concerning the constant power consumed by an ideal capacitor is true?
   a) It is always zero.
   b) It cannot be zero.
   c) The time-average must be zero.
   d) The peak-value must be zero.
   e) None of above.

A toroidal coil is constructed by winding a wire on an iron core, as shown in the figure. The cross section of this toroidal coil is a square, whose side has a length of 2 cm. The inner diameter of the core is *10 cm*, as shown in the cross section. The coil carries the current *1 A*. There are a total of *1000* turns of the wire. What is the magnetic flux density inside the iron core? (Assume that the wires are winding adjacent to each other with no overlapping. There is no leak of the magnetic field out side the toroidal coil.)

Cross Section