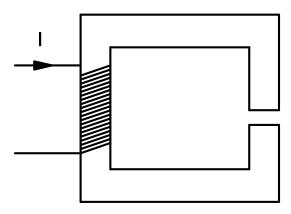
## ET332a Magnetic Circuits Homework

The solenoid shown in the figure below consists of a 500 turn coil on a uniformly sized core. The core has a cross-sectional area of  $4x10^{-4}$  m<sup>2</sup>. The length of the air gap is  $0.5x10^{-2}$  m long. Assume that the reluctance of the core is negligible, that the permeability of air is  $4\pi x10^{-7}$  Wb/A-t-m, and that the current, I, is 10 A, find:

- a.) the magnetomotive force present
- b.) the reluctance of the entire magnetic circuit
- c.) the total magnetic flux that circulates
- d.) the magnetic flux density in the air gap
- e.) the magnetic field intensity in the air gap



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