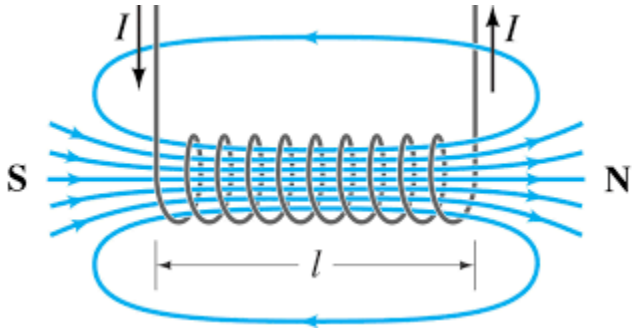
Magnetic Fields: Section 5b: Problems

1. Determine the magnetic field of a Solenoid using Ampere's law and Biot-Savart Law.



2. Using Ampere's law find the B- field both inside and outside of a wire of radius R with a current I?
3. Determine the magnetic field of a toroid
4. Do this problem:

(a) Find the magnetic field at the center of a square loop, which carries a steady current I. Let R be the distance from center to side (Fig. 5.22).

(b) Find the field at the center of a regular n-sided polygon, carrying a steady current I. Again, let R be the distance from the center to any side.

(c) Check that your formula reduces to the field at the center of a circular loop, in the limit $n \to \infty$.

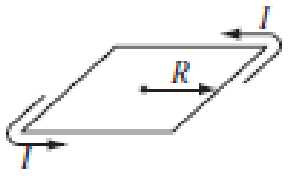


FIGURE 5.22