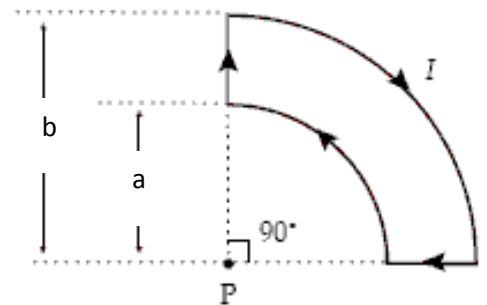
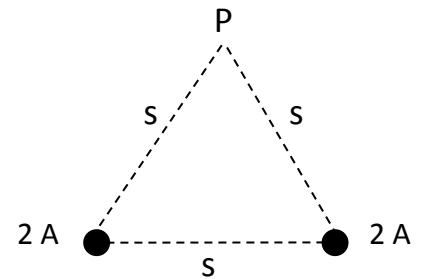


- At what distance from the central axis of a long straight thin wire carrying current of 5.0 A is the magnitude of the magnetic field due to the wire equal to the strength of the Earth's magnetic field, which is about $5.0 \times 10^{-5} \text{ T}$?
- Find the field inside a long solenoid with 100 turns per cm if it carries a current of 2 A?
- Two parallel wires that are 5.0 cm apart carry currents of 1.0 A and 8.0 A each in parallel directions. Find the force per unit length (with direction) exerted by one wire on the other.
- If $a = 30 \text{ cm}$, $b = 60 \text{ cm}$, and $I = 6 \text{ A}$, what is the magnitude of the magnetic field at point P, the center of curvature for the arc segments?



5. Two long straight wires pierce the plane of the paper at vertices of an equilateral triangle as shown in the sketch. They each carry 2.0 A currents out of the paper. The side of the triangle $s = 4$ cm. What is the magnitude of the magnetic field at the third vertex (P)?



6. The same, if the right current goes into the paper?
7. A cylindrical wire conductor has radius $R = 5$ mm. The wire carries a current of 1.0 A which is uniformly distributed over the cross-section of the wire. What is the magnitude of the magnetic field at a radial distance of $r = 2$ mm from the center axis of the wire?
8. Two long straight wires enter a room through a rectangular frame. One carries a current of 3 A into the room. The other carries current of 5 A out. What is the magnitude of the path integral around the frame?