Ľiot-Savart in action

- Find the contribution to the magnetic field at the center of a circular ring current I of radius r due to a piece of the ring that corresponds to an arc of angle θ.
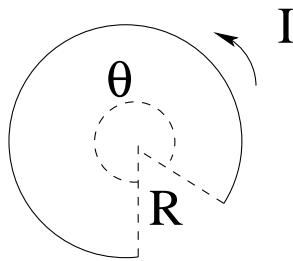
- Use your previous answer to find the magnetic field at the center of the circle due to the current flowing in the configuration shown below that is made up of the two arcs and the two radial pieces. The smaller arc has a radius R and the outer one has radius $R + r$. The two radial wires that connect the two arcs have length r.
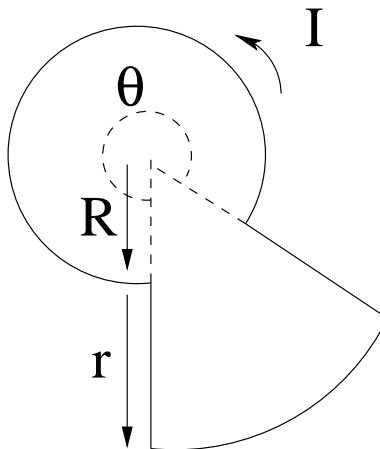
- In your previous answer, check that for $r \to 0$ the field reduces to the field of a circular wire.