

8. Recalling the *straight sections* discussion in Sample Problem 30-1, we see that the current in segments AH and JD do not contribute to the field at point C . Using Eq. 30-11 (with $\phi = \pi$) and the right-hand rule, we find that the current in the semicircular arc HJ contributes $\mu_0 i/4R_1$ (into the page) to the field at C . Also, arc DA contributes $\mu_0 i/4R_2$ (out of the page) to the field there. Thus, the net field at C is

$$\vec{B} = \frac{\mu_0 i}{4} \left(\frac{1}{R_1} - \frac{1}{R_2} \right) \quad \text{into the page} .$$