P #38 c

Ch 19 - Pg 615

c) $I_1 = I_2 = 5.0\,A$
$r_1 = .20\,m$
$r_2 = .30\,m$

$$B_1 = \frac{\mu_0 \cdot I}{2 \cdot \pi r} = \frac{\mu_0 (5.0A)}{2 \cdot \pi \cdot (.20m)} = 5.0 \times 10^{-6}\,T \text{ (out)}$$

$$B_2 = \frac{\mu_0 \cdot (5.0A)}{2 \cdot \pi (.30m)} = 3.33 \times 10^{-6}\,T \text{ (in)}$$

$$B_{12} = B_1 - B_2 = (5.0 \times 10^{-6}\,T) - (3.33 \times 10^{-6}\,T)$$

$$\boxed{B_{12} = 1.67 \times 10^{-6}\,T \text{ (out)}}$$