P # R

Ch 19

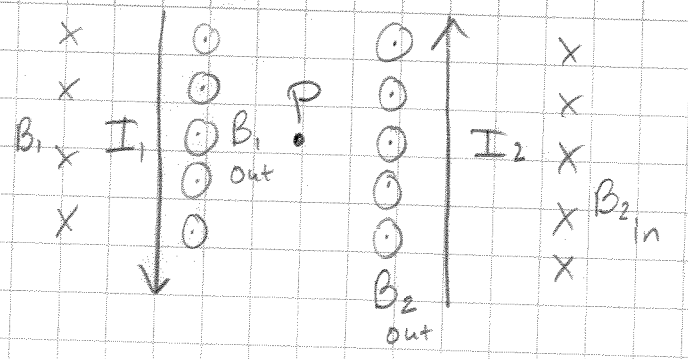
$I_1 = I_2 = 12\ A$

$r_1 = r_2 = \frac{1}{2} \cdot d = \frac{1}{2}(.20\ m) = .10\ m$

a) $B = \frac{\mu_0 \cdot I}{2\pi r} = \frac{(4\pi \times 10^{-7}\ T \cdot m/A) \cdot (12\ A)}{2\pi \cdot (.10\ m)}$

$$\boxed{B_1 = B_2 = 2.4 \times 10^{-5}\ T}$$

b) Determine the direction of B_1 and B_2 at Point P.



Use RHR #2 to determine the direction of B on each side of the 2 wires

B_1 at Point P is out, and B_2 at Point P is out

$B_{net} = B_1 + B_2$

$= (2.4 \times 10^{-5}\ T) + (2.4 \times 10^{-5}\ T)$

$$\boxed{B_{net} = 4.8 \times 10^{-5}\ T}$$