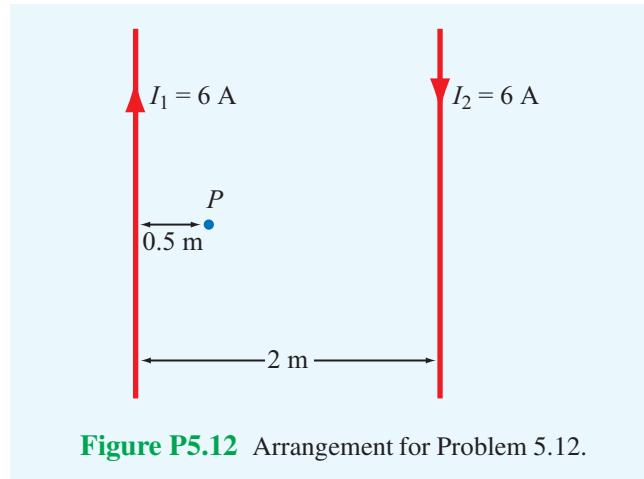


**5.12** Two infinitely long, parallel wires are carrying 6-A currents in opposite directions. Determine the magnetic flux density at point  $P$  in Fig. P5.12.



**Figure P5.12** Arrangement for Problem 5.12.

**Solution:**

$$\mathbf{B} = \hat{\phi} \frac{\mu_0 I_1}{2\pi(0.5)} + \hat{\phi} \frac{\mu_0 I_2}{2\pi(1.5)} = \hat{\phi} \frac{\mu_0}{\pi} (6 + 2) = \hat{\phi} \frac{8\mu_0}{\pi} \quad (\text{T}).$$

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