

80. Using a magnifying glass, we see that all but i_2 are directed into the page. Wire 3 is therefore attracted to all but wire 2. Letting $d = 0.50$ m, we find the net force (per meter length) using Eq. 30-15, with positive indicated a rightward force:

$$\frac{|\vec{F}|}{\ell} = \frac{\mu_0 i_3}{2\pi} \left(-\frac{i_1}{2d} + \frac{i_2}{d} + \frac{i_4}{d} + \frac{i_5}{2d} \right)$$

which yields $|\vec{F}|/\ell = 8.0 \times 10^{-7}$ N/m.