78. By the right-hand rule, the magnetic field $\vec{B}_1$(evaluated at a) produced by wire 1 (the wire at bottom left) is at $\phi = 150°$ (measured counterclockwise from the $+x$ axis, in the xy plane), and the field produced by wire 2 (the wire at bottom right) is at $\phi = 210°$. By symmetry ($\vec{B}_1 = \vec{B}_2$) we observe that only the x-components survive, yielding

$$\vec{B}_1 + \vec{B}_2 = 2\,\frac{\mu_0\, i}{2\pi\,\ell}\,\cos 150°\,\hat{\imath} = -3.46 \times 10^{-5}\,\hat{\imath}\ \text{T}$$

where $i = 10$ A, $\ell = 0.10$ m, and Eq. 30-6 has been used. To cancel this, wire b must carry current into the page (that is, the $-\hat{k}$ direction) of value

$$i_b = \left(3.46 \times 10^{-5}\right)\frac{2\pi\, r}{\mu_0} = 15\ \text{A}$$

where $r = \sqrt{3}\,\ell/2 = 0.087$ m and and Eq. 30-6 has again been used.