



B field at center of ~~page~~ ^{rect} is out of page

$$B = \frac{\mu_0 I}{2\pi r} = \frac{4\pi \times 10^{-7} (12)}{2\pi (.0425)} = 5.6 \times 10^{-5} \text{ Tesla}$$

Force on x is to left; Force on z is to right
same distance from 12.0 A current - cancel

Force on w is down, Force on y is up but E_w
segment w is closer to 12.0 A current so will
experience stronger field + thus force ^{net} direction down

$$|F| = I_2 B_w - I_2 B_y = \frac{I_2 l \mu_0 I_1}{2\pi r_w} - \frac{I_2 l \mu_0 I_1}{2\pi r_y}$$

$$= \frac{(8.5)(.055)(4\pi \times 10^{-7})(12.0)}{2\pi} \left[\frac{1}{.025} - \frac{1}{.06} \right] = 2.6 \times 10^{-3} \text{ N}$$