

38. (a) From $F_B = iLB$ we get

$$i = \frac{F_B}{LB} = \frac{10 \times 10^3 \text{ N}}{(3.0 \text{ m})(10 \times 10^{-6} \text{ T})} = 3.3 \times 10^8 \text{ A} .$$

(b) $P = i^2 R = (3.3 \times 10^8 \text{ A})^2 (1.0 \Omega) = 1.0 \times 10^{17} \text{ W}$.

(c) It is totally unrealistic because of the huge current and the accompanying high power loss.