\[ N = \# \text{ of circular loops} \]

See page 514.

\[ n = \frac{N}{L} = \text{turns/length} \]

\( B = \mu_0 n I = \mu_0 \frac{N I}{L} \)

\[ \Rightarrow N = \frac{BL}{\mu_0 I} = \frac{(0.270 T)(0.400 \text{ m})}{(4\pi \times 10^{-7} \text{T} \cdot \text{m/A})(12.0 \text{ A})} \]

\[ N = \frac{0.108}{1.508 \times 10^{-5}} = 716 \text{ turns} \]

\[ \frac{N}{L} = \frac{716 \text{ turn}}{0.400 \text{ m}} = 1790 \text{ turns/meter} \]

\[ \text{(b) Length of wire?} \]

One loop length \( C = 2\pi r = 2\pi (1.40 \times 10^{-2} \text{ m}) = 8.796 \times 10^{-2} \text{ m} \)

Total length is \( 716 \times C \) of one loop \( = 716 \times 8.796 \times 10^{-2} \text{ m} \)

\[ L = 63.0 \text{ m} \]

\[ 2p+5. \]