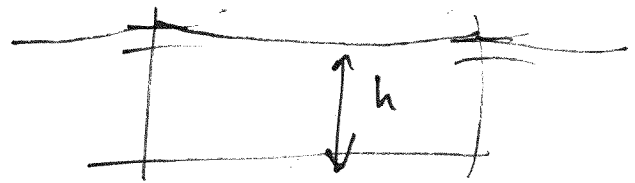


$$h = 7.0 \text{ m} \quad I = 500 \text{ A}$$

$$I = 500 \text{ A}$$



Treat the transmission line as an infinitely long straight wire.

Therefore, the magnetic field can be calculated with the following equation

$$B = \frac{\mu_0 I}{2\pi R}$$

$$B = \frac{(4\pi \times 10^{-7} \frac{\text{T}\cdot\text{m}}{\text{A}})(500 \text{ A})}{2\pi (7.0 \text{ m})}$$

$$B = 1.43 \times 10^{-5} \text{ T}$$

Earth's magnetic field is

$$B_{\text{earth}} \approx 50 \times 10^{-6} \text{ T}$$

$$\text{Then } \frac{B}{B_{\text{earth}}} = \frac{1.43 \times 10^{-5} \text{ T}}{50 \times 10^{-6} \text{ T}} = 0.286$$

This is 28.6% of earth's.