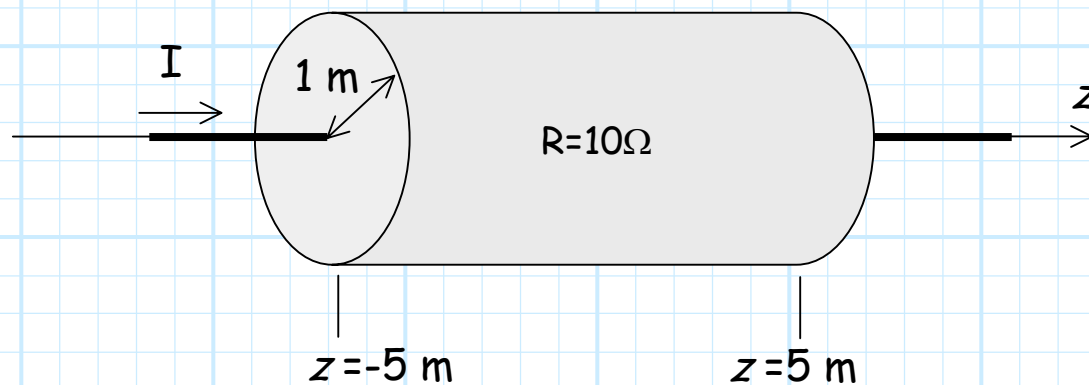


Special Problem 8-3.6

A $10\ \Omega$ resistor with length 10 and radius 1 is aligned with the z -axis.

Within this resistor exists the magnetic field:

$$\mathbf{H}(\vec{r}) = \frac{4}{\pi} \rho^4 \hat{a}_\phi \quad [A/m]$$



1. Determine the current I through this resistor.
2. If the electric potential at $z = -5$ is 20 V, determine the electric potential at $z = 5$.