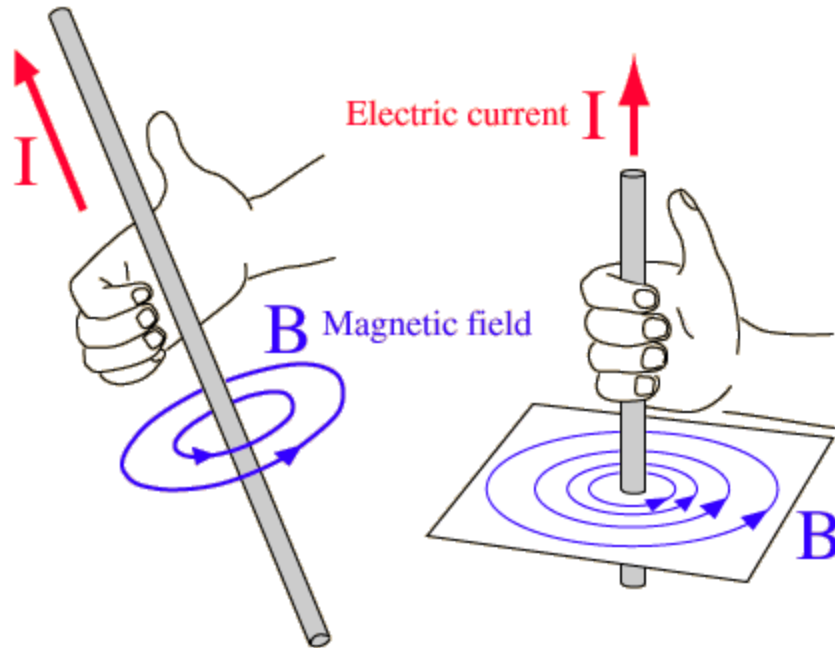


Physics 12 Section 20-5
Magnetic Field Due to a Straight Wire

1. A magnetic field is produced around a current carrying wire.



2. The magnetic field is

$$B \propto \frac{I}{r}$$

3. The above relationship holds as long as r is much smaller than the length of the wire.

4. To make the above proportionality an equality, a constant of proportionality must be introduced.

equation:

Making the above

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

Example: A vertical electric wire in the wall of a building carries a dc current of 25A upward. What is the magnetic field at a point 10cm due North of this wire?

