

Magnetics

1. Calculate the relative magnetic permeability for a metal, when the magnetic intensity field has the amplitude $10^4 \text{ [A}\cdot\text{m}^{-1}]$ and the magnetic induction field has the amplitude 3.14159 [T] ($\mu_0 = 4\pi \cdot 10^{-7} \text{ H}\cdot\text{m}^{-1}$)
2. Calculate the magnetic potential Ψ of a magnetic dipole for the calculation point positions $\theta = 90^\circ$ and the magnetic dipole moment $4\pi \text{ [N}\cdot\text{m/T]}$.
3. A rectangular loop of dimensions 3 cm by 5 cm is placed perpendicular in a uniform magnetic field of magnitude 0.1 T. Find the magnetic flux through the loop.

HW: Calculate the relative magnetic permeability for a metal, when the magnetic intensity field has the amplitude $10^4 \text{ [A}\cdot\text{m}^{-1}]$ and the magnetic induction field has the amplitude $2.4\pi \text{ [T]}$ ($\mu_0 = 4\pi \cdot 10^{-7} \text{ H}\cdot\text{m}^{-1}$)