

50. (a) $\mu = N A i = \pi r^2 i = \pi (0.150 \text{ m})^2 (2.60 \text{ A}) = 0.184 \text{ A} \cdot \text{m}^2$.

(b) The torque is

$$\tau = |\vec{\mu} \times \vec{B}| = \mu B \sin \theta = (0.184 \text{ A} \cdot \text{m}^2) (12.0 \text{ T}) \sin 41.0^\circ = 1.45 \text{ N} \cdot \text{m} .$$