

Ex 19.4 p 597

$$r = 50\text{cm} = 0.5\text{m}$$

$$B = 0.5\text{T}$$

$$\theta = 30^\circ$$

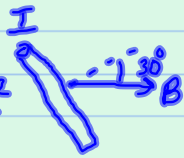
$$I = 2\text{A}$$

$$A = \pi r^2 = \pi (.5)^2 = .79\text{m}^2$$

$$\tau = NBI A \sin \theta$$

$$= 1(.5)(2)(.79)\sin 30$$

$$= .39\text{N}\cdot\text{m}$$



$$\tau = NBI A \sin \theta$$

$N \cdot \text{m}$ (torque)
N (number of turns of wire)
B (Tesla)
I (Amp)
 m^2 (area)

$$\text{circ} = 2\pi r$$

Area
circle πr^2
rectangle $b \cdot l$
ellipse πab



a - semi major axis
b - semi minor axis

$$9.0 \times 10^{-4} \text{N}\cdot\text{m}$$