CONCEPT: FORCE AND TORQUE ON CURRENT LOOPS

● Remember: Current-carrying wires in a Magnetic Field FEEL a Magnetic Force → **F = _____**

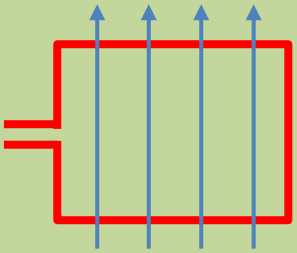
● Wires can be arranged to form LOOPS. In SOME cases, you get a TORQUE:

- The NET force on a LOOP in an uniform B-Field is _____.

→ Magnetic Torque **τ = _____**

- Angle **Θ** is between Normal of _____ and _____.

→ Magnetic Moment **μ = _____**



EXAMPLE: A loop with a magnetic moment of 0.5 Am^2 carries a current of 0.01 A. If it is placed in the presence of a magnetic field of strength 0.05 T, which points in the plane of the loop, what magnitude torque will the loop experience?

EXAMPLE: TORQUE ON LOOP AT AN ANGLE

A wire is arranged as a rectangular 4 m wide and 2 m deep. It is placed in the plane shown below, where a constant 5 T magnetic field exists. The wire loop is parallel to the plane, and the magnetic field is directed 30º above the plane. If the loop experiences a net torque of 10 N m, what must the current running through it be**?**