

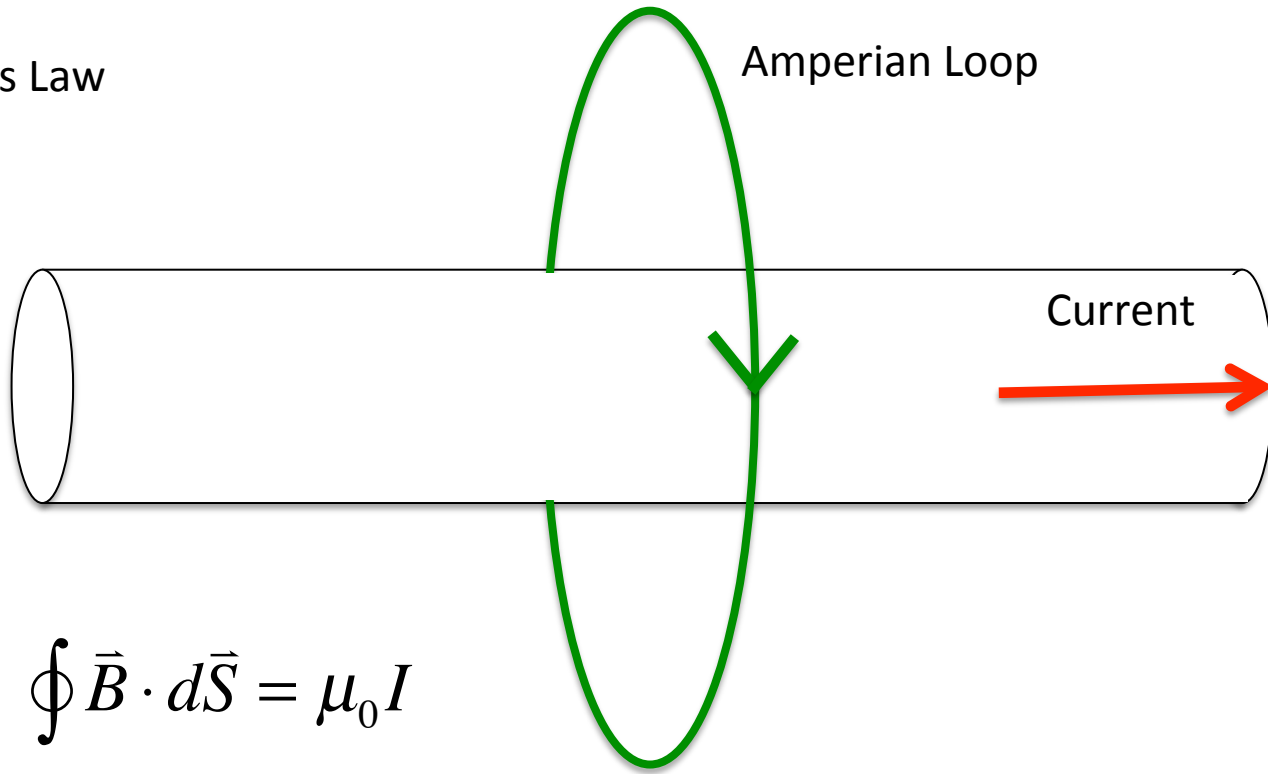
Webassign: assigned Thursday, Due Wednesday at 11:59 pm.

Next Quiz: 11/1

Quiz grade will be posted on webassign later today.

Ampere's Law

Amperian Loop

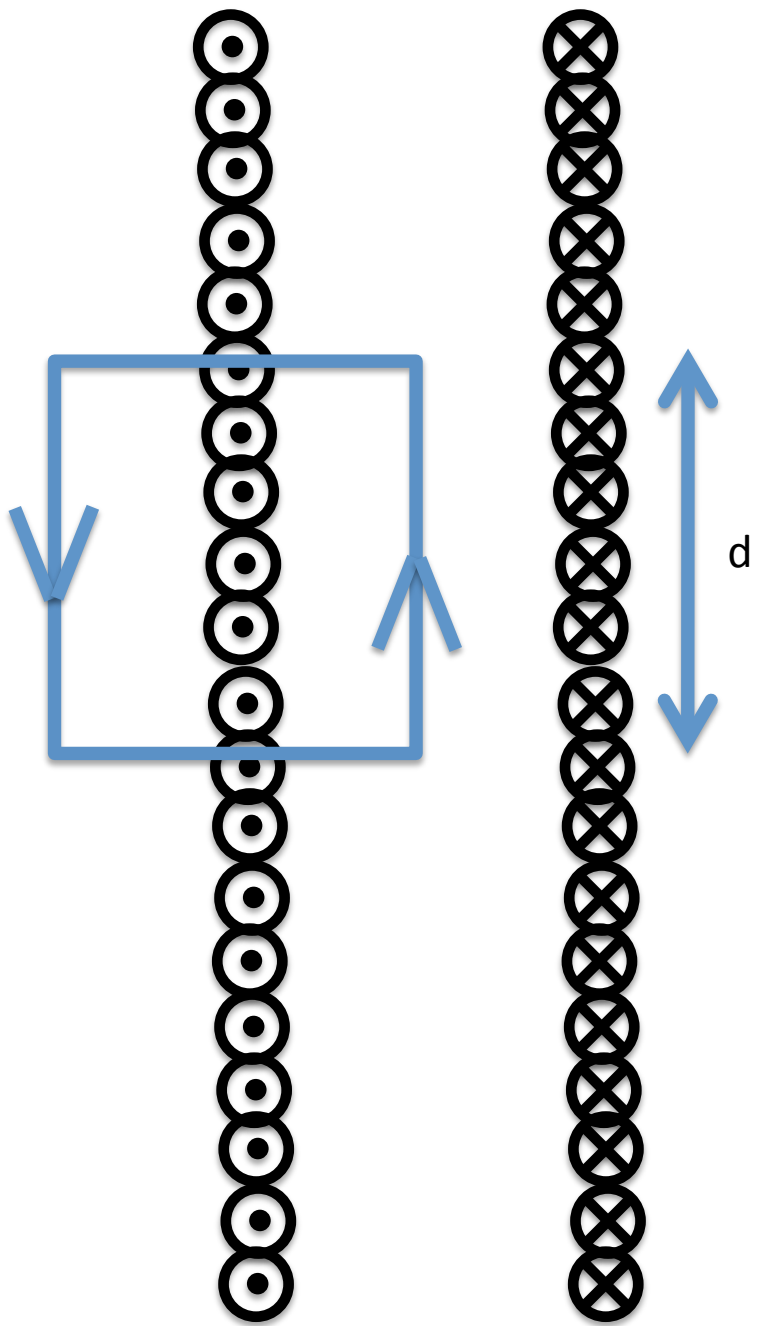


$$\oint \vec{B} \cdot d\vec{S} = \mu_0 I$$

Integral evaluated around any closed path where I is the total current passing through any surface defined by the path

Example 1: Inside and outside of a wire

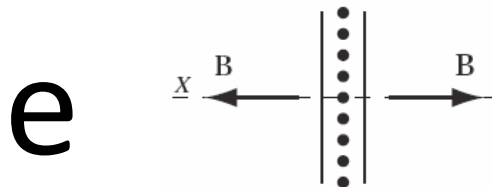
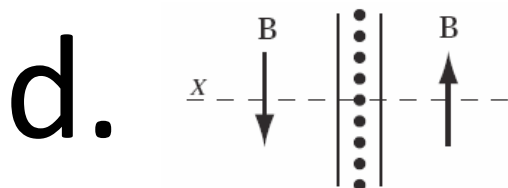
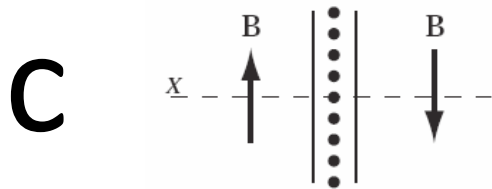
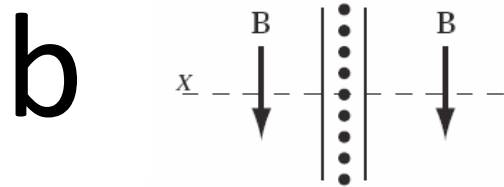
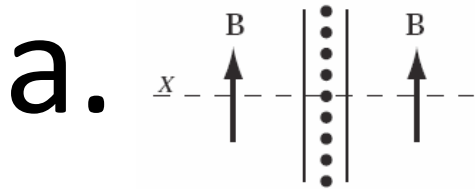
Example 2: Solenoid



Forces between two wires



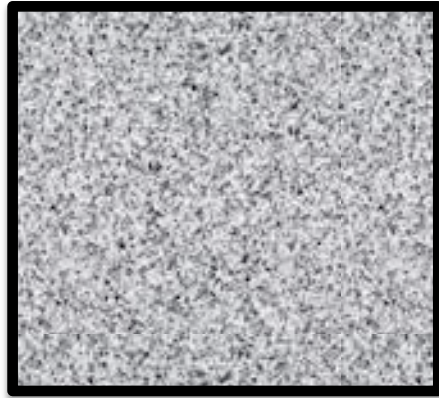
Problem 1: A thin infinitely large current sheet lies in the y - z plane. Current of magnitude J_s per unit length along the z axis travels in the y -axis direction, which is up out of the page. Which diagram below correctly represents the direction of the magnetic field on either side of the sheet?



Current sheet

Magnetic Flux

$$\Phi_B = \int \vec{B} \cdot d\vec{A}$$

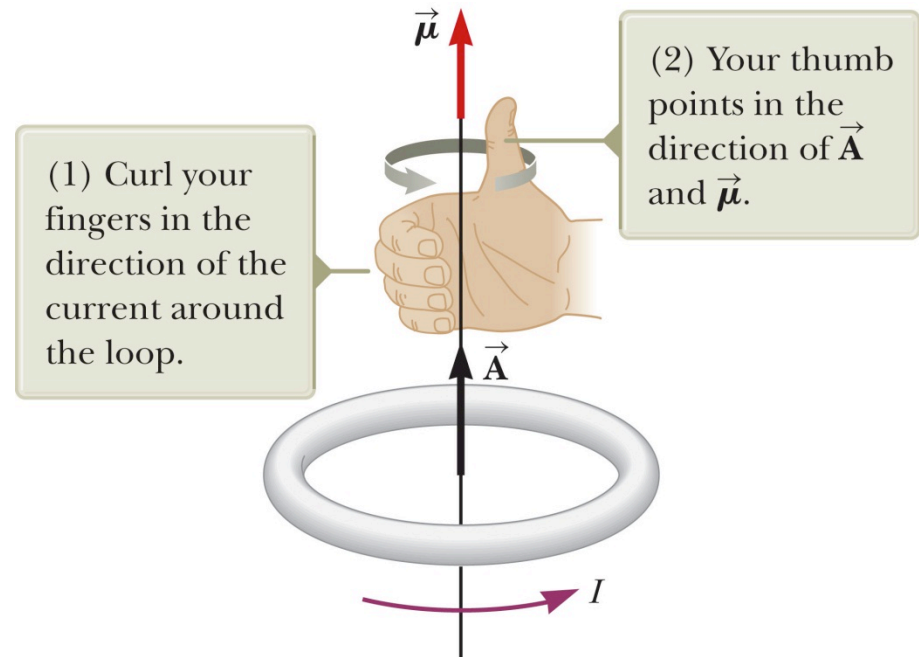


From last Thursday: Torque on current loop in magnetic field

$$\vec{\tau} = I\vec{A} \times \vec{B}$$

$$\vec{\mu} = I\vec{A}$$

μ : magnetic moment



Magnetic field applies torque on magnetic moment

Atoms

