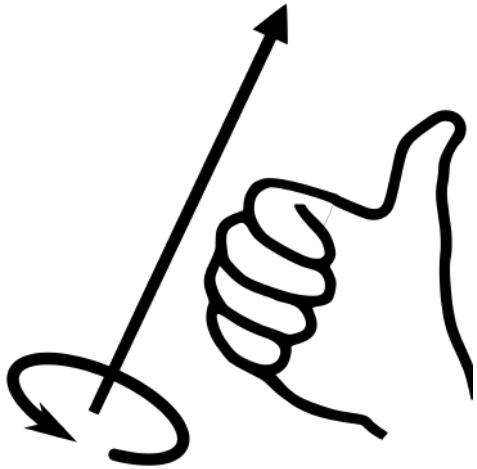
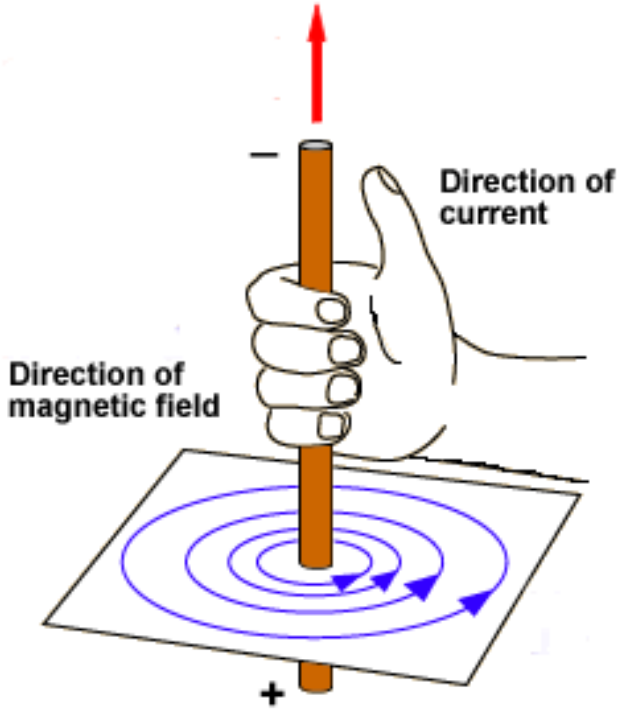
Right Hand Rules



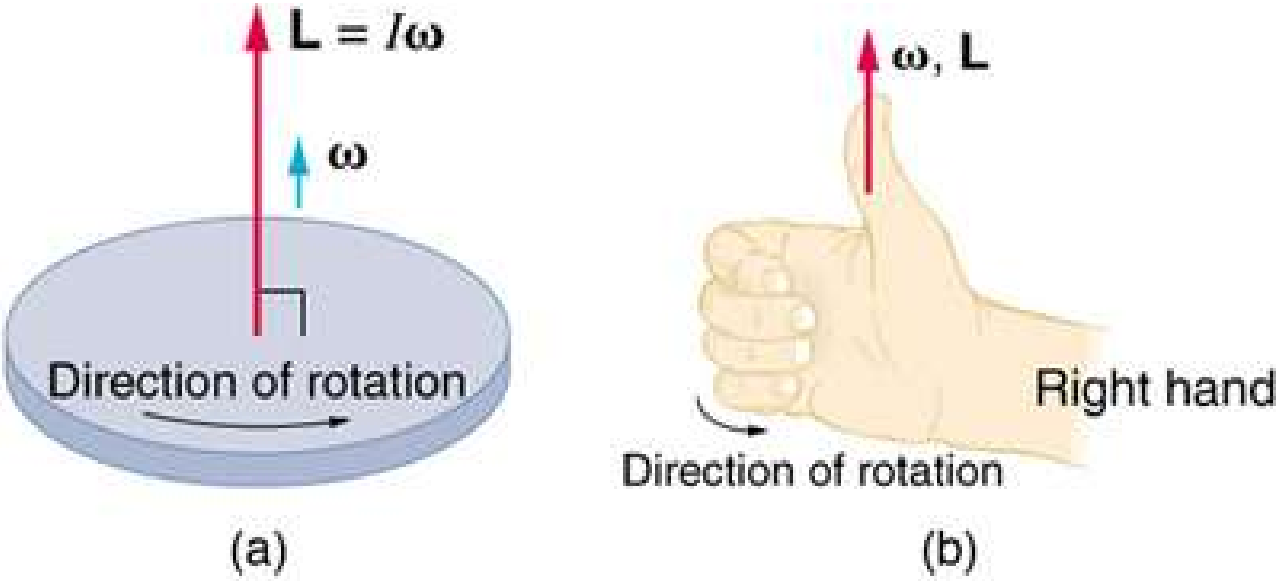
RHR #1 - Straight Wire



Thumb: direction of current (from + to -)

Fingers: curl in direction of magnetic (B) field

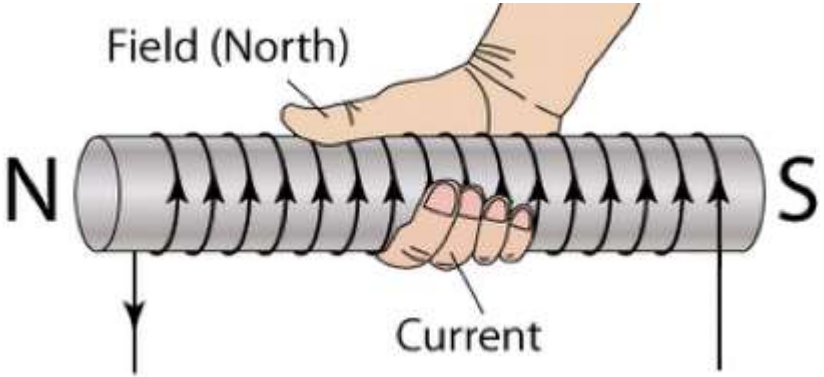
RHR #1: CW or CCW?



Practice Time!

Current is going up?
Current is going down?
Current is going to the left?
Current is going to the right?

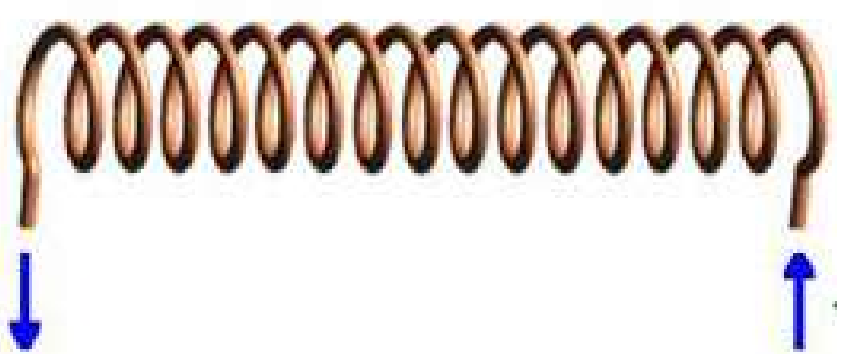
RHR #2: Solenoids

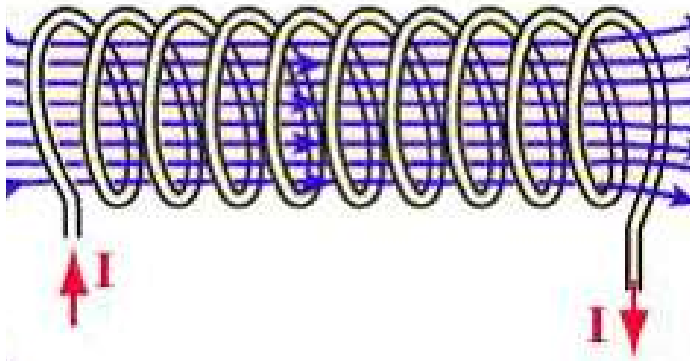


Fingers: curl in direction of current

Thumb: points towards the North Pole

RHR #2





RHR #3: Moving Charge

Three players:

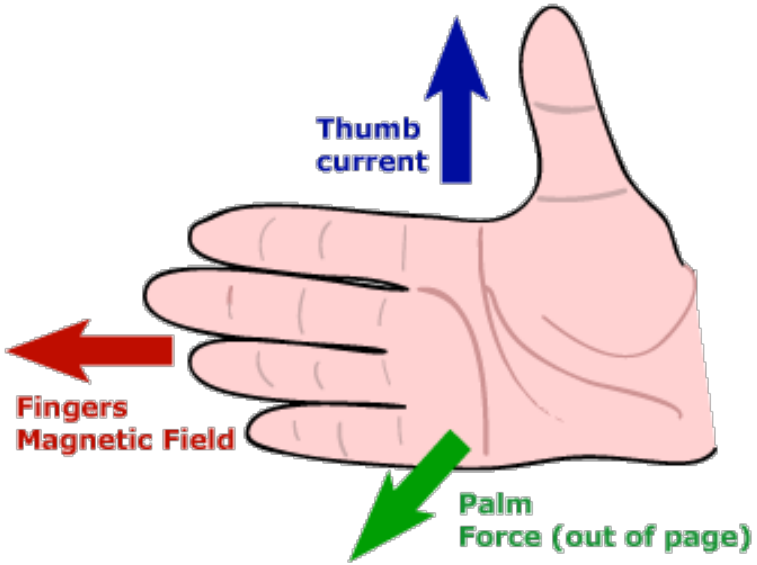
1. Electron(s) or Proton(s) with **Velocity**
2. Magnetic Field **(B)**
3. Deflection **Force**

Rules:

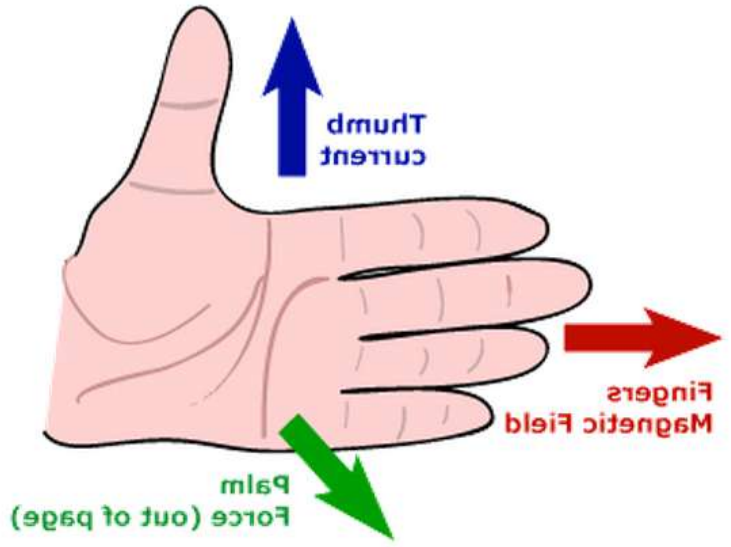
1. All have to be perpendicular to each other.

RHR #3: Particle Deflection

Right hand: Protons



Left hand: Electrons

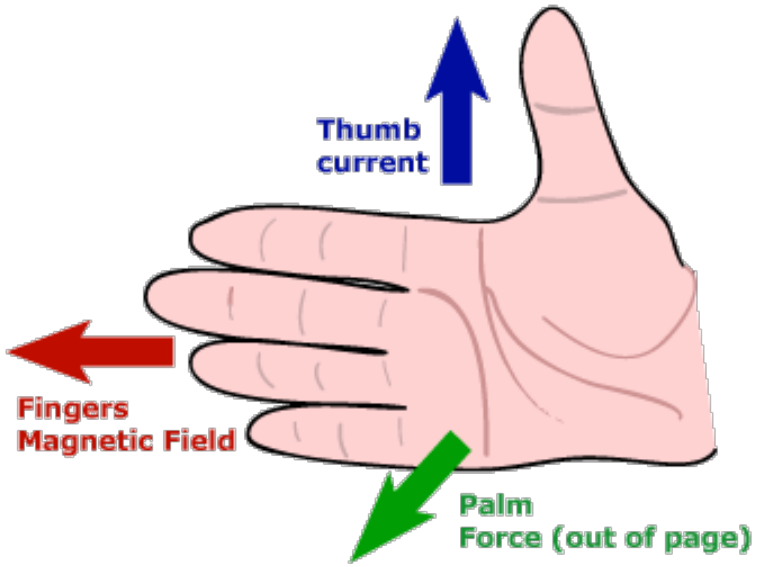


RHR #3: Particle Deflection

Thumb: Direction of current or velocity of particle

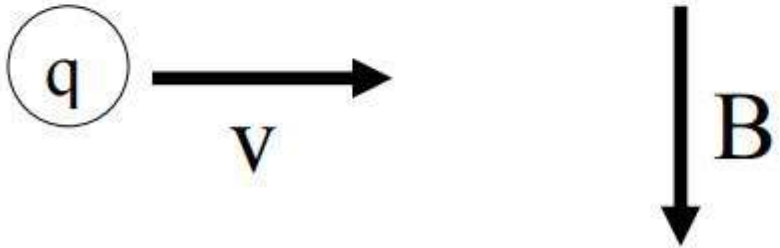
Fingers: Direction of magnetic field

Palm: Deflection force



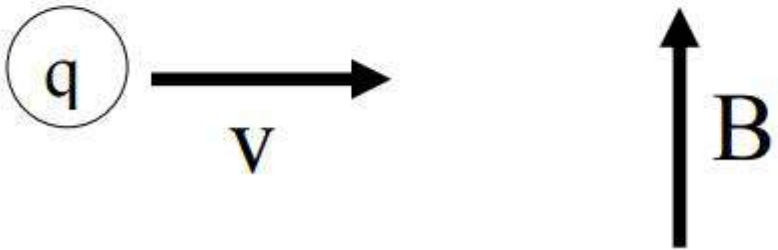
Practice #1

What direction is the force on a positive charge when entering a uniform B field in the direction indicated?



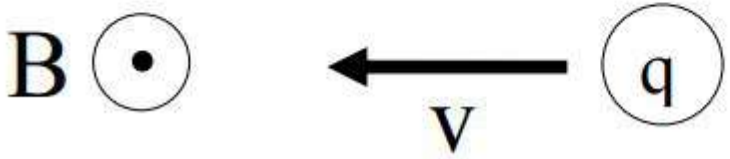
Practice #2

What direction is the force on a positive charge when entering a uniform B field in the direction indicated?

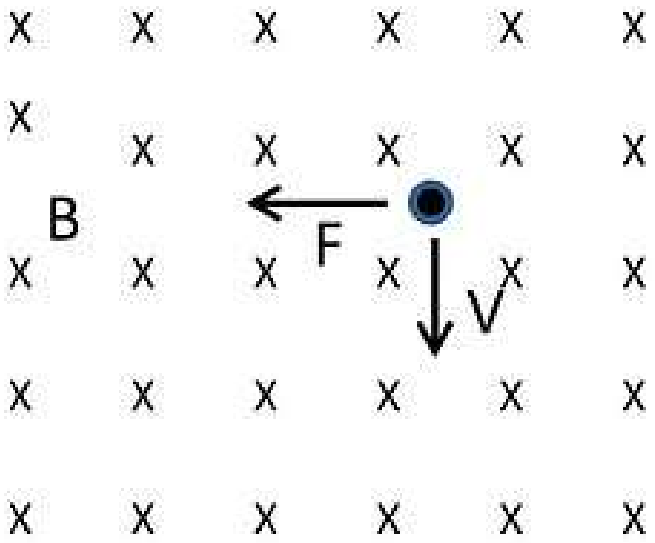


Practice #3

What direction is the force on a positive charge when entering a uniform B field in the direction indicated?



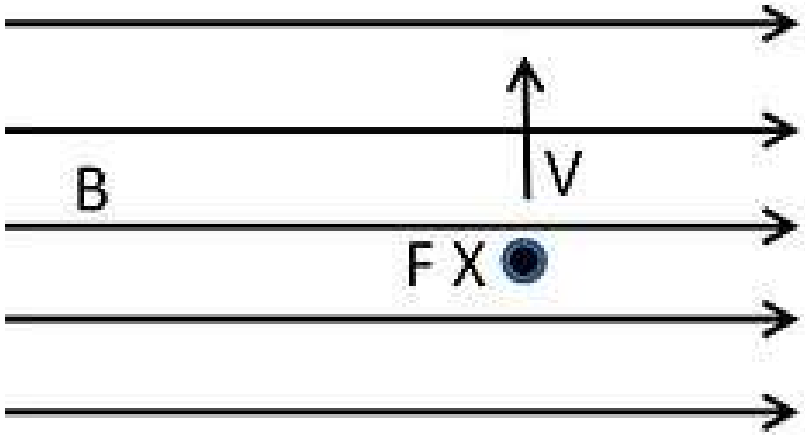
RHR #3: Particle Deflection



The magnetic force and velocity vectors are shown for a charged particle moving through the magnetic field.

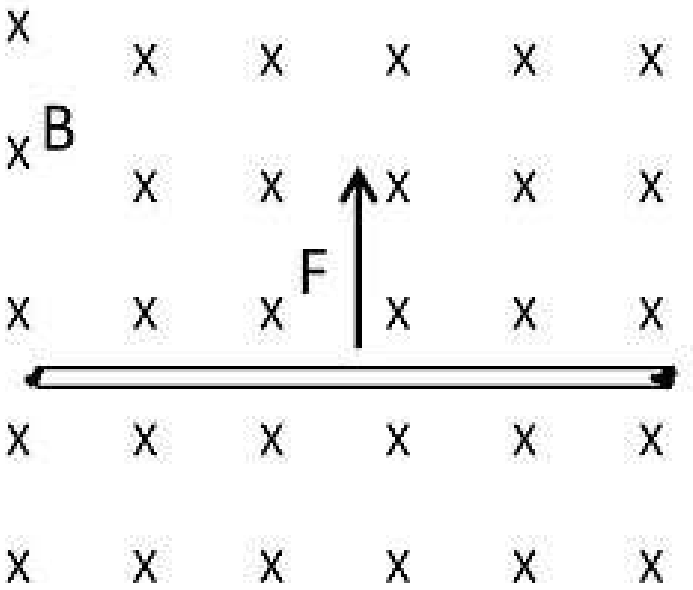
What sign is the charge?

RHR #3: Particle Deflection



What is the charge on the moving particle?

RHR #3: Particle Deflection



The magnetic force vector direction is shown for a current-carrying wire in a magnetic field.

What direction is the current?