

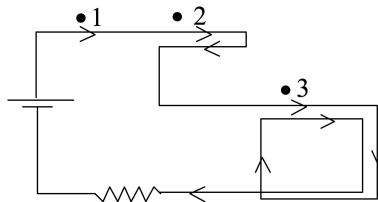
Which one of these devices does *not* use magnetic fields for some useful purpose(s)

- A: 20 year old car
- B: DVD player
- C: Simple electric drill
- D: Refrigerator
- E: They all use magnets/magnetic fields for useful purposes

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A magnetic compass is placed at the points 1, 2, and 3 near an electric circuit with this twisty shape. Rank order $|B|$ from *biggest* to *smallest*:





- A) 1-2-3
- B) 3-2-1
- C) 2-3-1
- D) 1-3-2
- E) Other

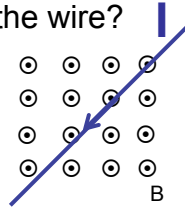


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From Mazur "Peer Instruction"

A current-carrying wire is in a B-field.

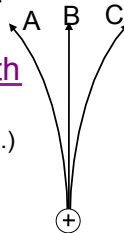
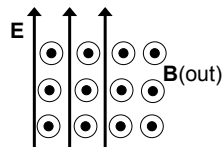
What is the direction of the magnetic force on the wire?

- A: 
- B: 
- C: 
- D: 
- E: Other/not sure



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A +q is released from rest in uniform E- and B-field (shown below) Which path will the + particle follow? (Paths shown are in plane of page.)

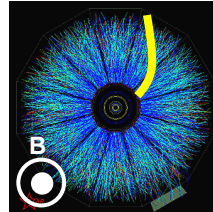


- D: will not move
- E: other

Here is an event display from a high energy physics experiment. (You are seeing millions of tracks of charged particles leaving the central region) There is a 1 Tesla uniform magnetic field coming *out of the page*. What sign is the electric charge for the highlighted (yellow) track?

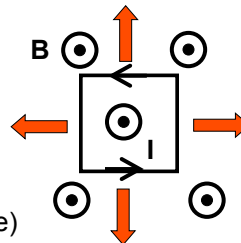
A: + B: -

$$\vec{F} = q\vec{v} \times \vec{B}$$



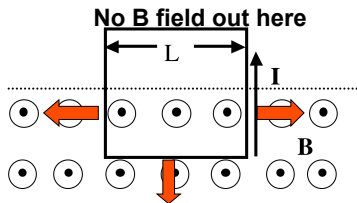
A square loop of wire carrying current I is in a uniform magnetic field B . The loop is perpendicular to B (B out of the page). What is the direction of the net force on the wire?

- A: out of the page
- B: into the page
- C: \uparrow
- D: \downarrow
- E: 0 (or, none of these)

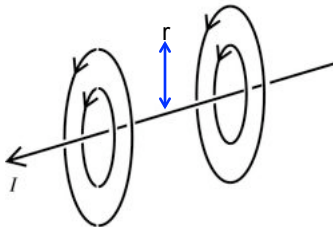


A square loop has a CCW current. It sits in a uniform B field (OUT of the page)
 Note: the B field is "cut off" partway up the current loop. What is the direction of $F(\text{net})$ on the whole loop?

- A) \odot
- B) \otimes
- C) \uparrow
- D) \downarrow
- E) other

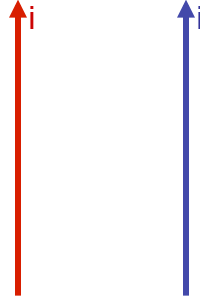


B-Field a distance r from a long wire:
 $B = \mu_0 I / 2\pi r$



What is the direction of the Force acting on the **Blue Wire**?

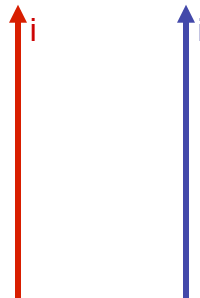
$$\vec{F}(total) = i\vec{L} \times \vec{B}$$



- A) Up
- B) Right
- C) Left
- D) Into the Page
- E) Out of the Page

What is the direction of the Force acting on the **Red Wire**?

$$\vec{F}(total) = i\vec{L} \times \vec{B}$$



- A) Up
- B) Right
- C) Left
- D) Into the Page
- E) Out of the Page