

Can we quantify the strength of a magnet? For example, given two magnets with different shapes and sizes, is it possible to say which one is stronger? If so, can you think of a quantitative way to assign a single number that represents the strength of the magnets?

**Extra: Think of at least 3 different ways we can do this.**

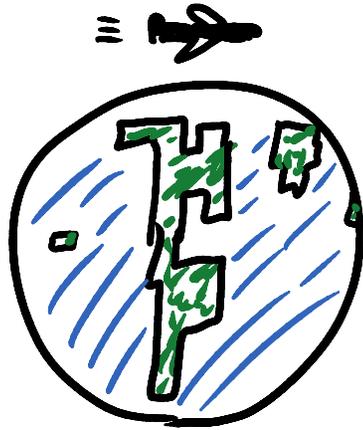


A jet plane with an aluminum body flies directly over the North pole of the Earth.

We can say that:

- A) Negative charges will build up at the nose of the plane
- B) Negative charges will build up on the right wing tip of the plane
- C) Negative charges will build up at the left wing tip of the plane
- D) Negative charges will build up on the bottom of the plane
- E) Negative charges will build up at the tail of the plane

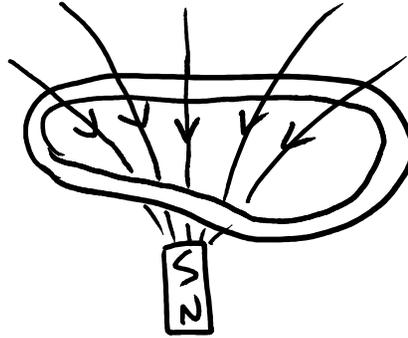
EXTRA: does charge keep building up forever? If not why not?



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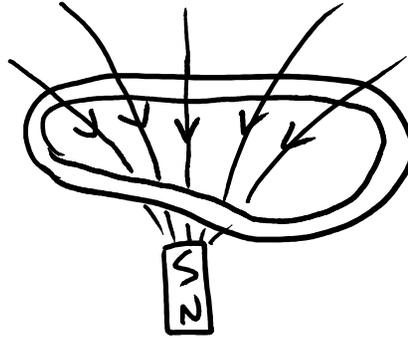
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The magnet shown above (stationary for a long time) is flipped over near a loop of wire. We can say that

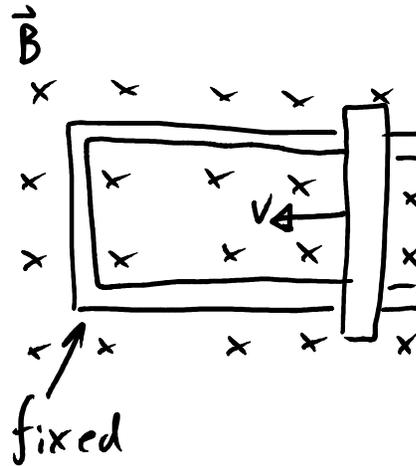
- A) There is a clockwise current in the wire before the magnet is flipped and a counterclockwise current in the wire after the magnet is flipped.
- B) There is a counterclockwise current in the wire before the magnet is flipped and a clockwise current in the wire after the magnet is flipped.
- C) There is a clockwise current in the wire while the magnet is being flipped.
- D) There is a counterclockwise current in the wire while the magnet is being flipped.
- E) There is never any current in the wire, since only the magnet moves, not the wire.

**EXTRA: If a current is induced, what causes the charges to move?**



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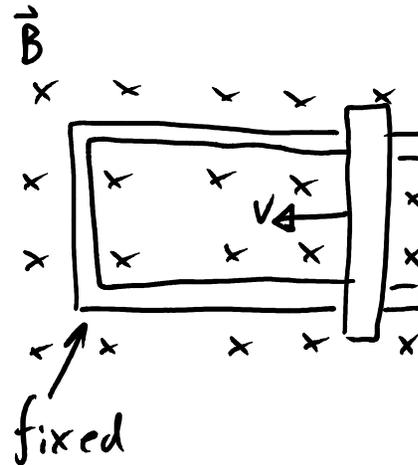
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A conducting circuit has a movable part that slides along through a constant magnetic field as shown. We can say that

- A) There is a clockwise current induced in the circuit.
- B) There is a counterclockwise current induced in the circuit.
- C) There is no induced current since the flux isn't changing.

**EXTRA: If a current is induced, what causes the charges to move?**



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