

Warmup 14 – EMF and Ohm's law

Current

For everyday currents in home electronics and wires, which answer is the order of magnitude of the average velocity of the electrons along the wire ?

- A. km/s
- B. m/s
- C. mm/s
- D. $\mu\text{m/s}$
- E. nm/s

For everyday currents in home electronics and wires, which answer is the order of magnitude of the instantaneous speed of the electrons in the wire?

- A. km/s
- B. m/s
- C. mm/s
- D. $\mu\text{m/s}$
- E. nm/s

EMF

An airplane flies from Denver to Washington D.C. through the earth's magnetic field. At a certain point on the journey the airplane is headed due east, and the magnetic field of the earth points north and down at about 40 degrees from horizontal.

Which wing of the airplane will accumulate positive charge? Please choose one.

- a) Right b) Left c) Neither d) Not enough information

On which part of the wing will the positive charge accumulate? Please select ALL that apply.

- a) Top b) Bottom c) Front d) Rear e) Other f) Not enough information

Please explain your answers to the previous 2 questions briefly but clearly:

If a light bulb was connected in a circuit to the tips of the two wings, would the current run in the wire? Would the light bulb light? Why or why not?

