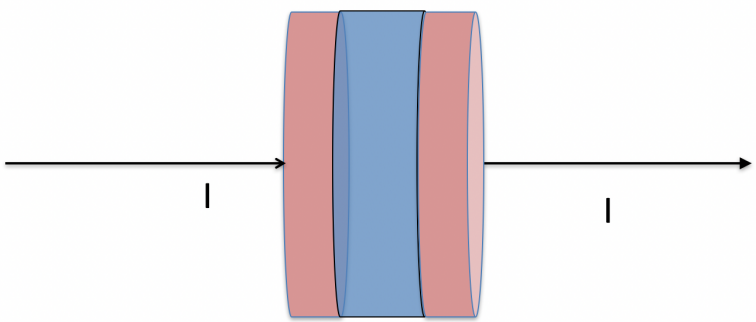


Consider the cylindrical volume of space bounded by the capacitor plates. Compute $\mathbf{S} = \mathbf{E} \times \mathbf{B}/\mu_0$ at the outside (cylindrical, curved) surface of that volume. Which WAY does it point?

A. Always inward

B. Always outward

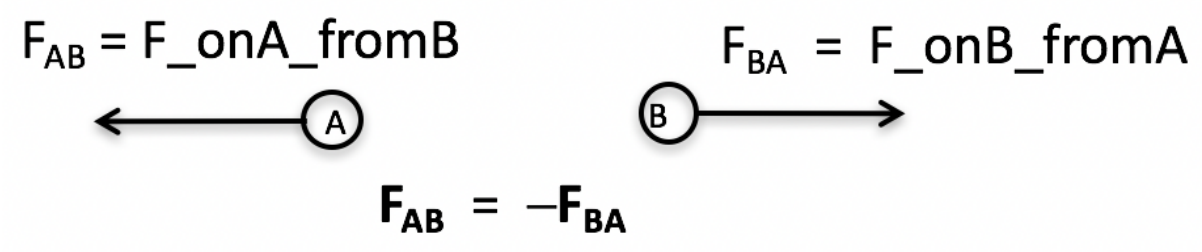
C. ???

The energies stored in the electric and magnetic fields are:

A. individually conserved for both $\mathbf{E}$ and $\mathbf{B}$, and cannot change.
B. conserved only if you sum the $\mathbf{E}$ and $\mathbf{B}$ energies together.
C. are not conserved at all.
D. ???

ANNOUNCEMENTS

- Quiz Friday after Spring Break (Topic TBD)
- Your papers are due Friday (3/1) by 5pm (20% of your grade BTW)
- As usual, you will use GitHub to turn them in.
- Homework 7 is due after Spring Break
- No Help Session this week
- Undergraduate Lunch at noon in 1400 BPS tomorrow



Newton's 3rd Law is equivalent to...

A. Conservation of energy

B. Conservation of linear momentum

C. Conservation of angular momentum

D. None of these. NIII is a separate law of physics.

Consider two point charges, each moving with constant velocity $\mathbf{v}$, charge 1 along the $+x$ axis and charge 2 along the $+y$ axis. They are equidistant from the origin.

What is the direction of the magnetic force on charge 1 from charge 2? (*You'll need to sketch this! Don't do it in your head!*)

A. +x
B. +y
C. +z
D. More than one of the above
E. None of the above

Consider two point charges, each moving with constant velocity $\mathbf{v}$, charge 1 along the $+x$ axis and charge 2 along the $+y$ axis. They are equidistant from the origin.

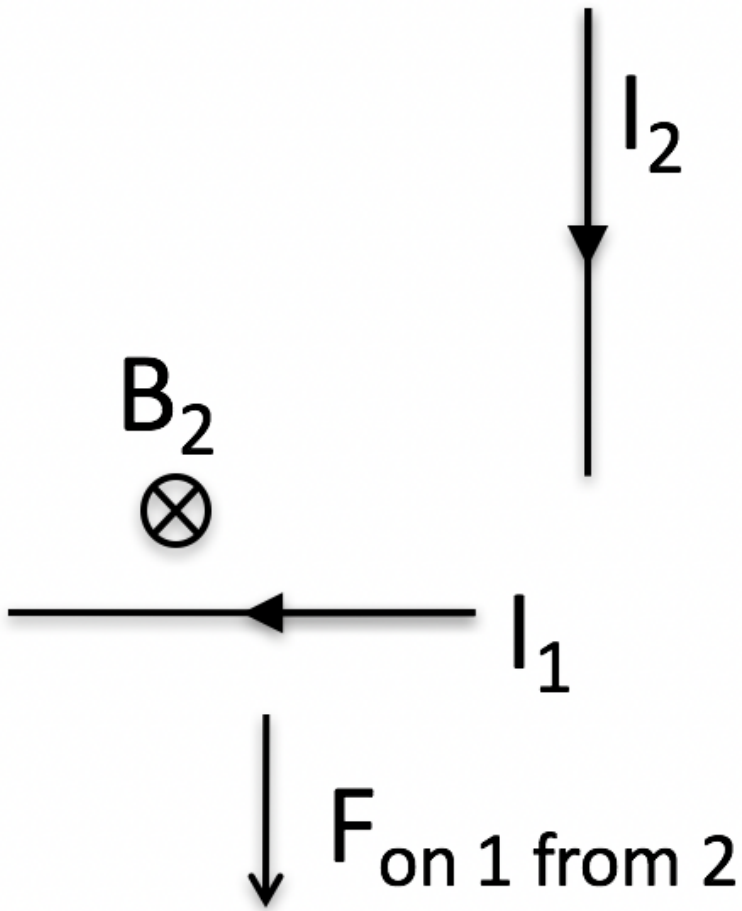
What is the direction of the magnetic force on charge 2 from charge 1? (You'll need to sketch this! Don't do it in your head!)

A. Equal to the answer of the previous question
B. Equal but opposite to the answer of the previous question
C. Something *different* than either of the above.

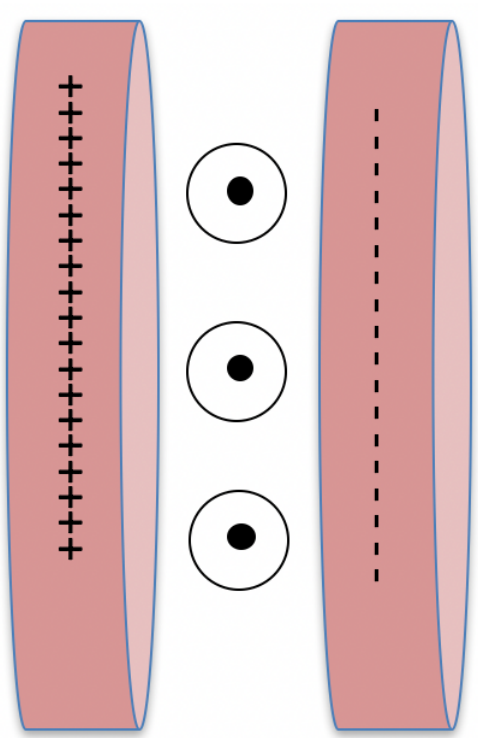
Two short lengths of wire carry currents as shown. (The current is supplied by discharging a capacitor.) The diagram shows the direction of the force on wire 1 due to wire 2.

What is the direction of the force on wire 2 due to wire 1?

A. Right
B. Left
C. Up
D. Down



Consider a charged capacitor placed in a uniform B field in the $+y$ direction. z points along the capacitor axis, so that x points upward.



Which way does the stored field momentum in this system point?

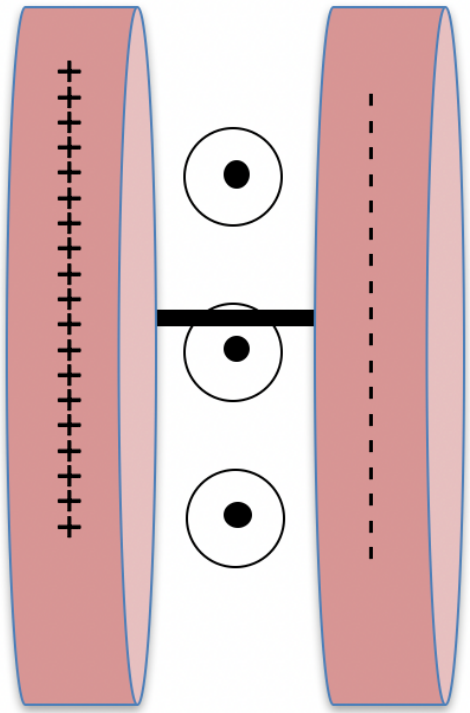
A. $\pm\hat{x}$

B. $\pm\hat{y}$

C. $\pm\hat{z}$

D. Zero!

Now "short out" this capacitor with a small wire. As the current flows, (while the capacitor is discharging)...



which way does the magnetic force push the wire (and thus, the system)?

A. $\pm\hat{x}$

B. $\pm\hat{y}$

C. $\pm\hat{z}$

D. Zero!