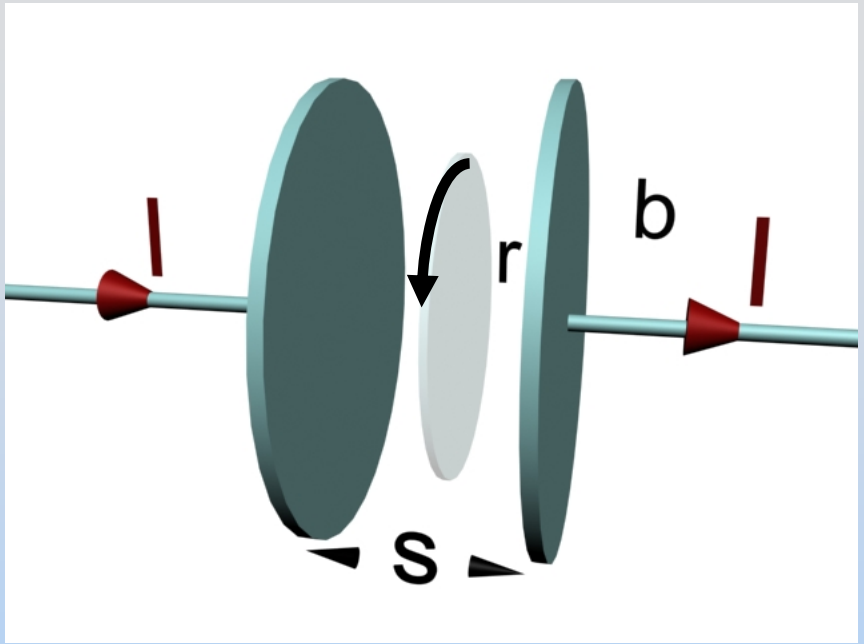
Concept Question: Capacitor

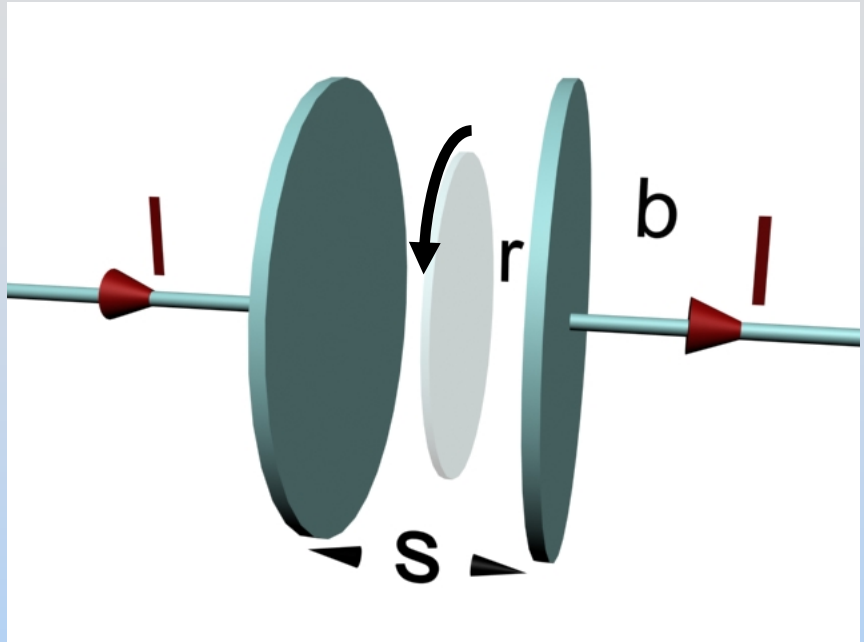
Consider a circular capacitor, with an Amperian loop (radius r) in the plane midway between the plates. When the capacitor is charging, the line integral of the magnetic field around the Amperian loop (in direction shown) is



1. Zero (No current through loop)
2. Positive
3. Negative
4. Can't tell (need to know direction of E)
5. I don't know

Concept Question: Capacitor

If instead of integrating around the pictured Amperian loop we were to integrate around an Amperian loop of the same radius as the plates (b) then the integral would be



1. the same.
2. larger.
3. smaller.
4. I don’t know.

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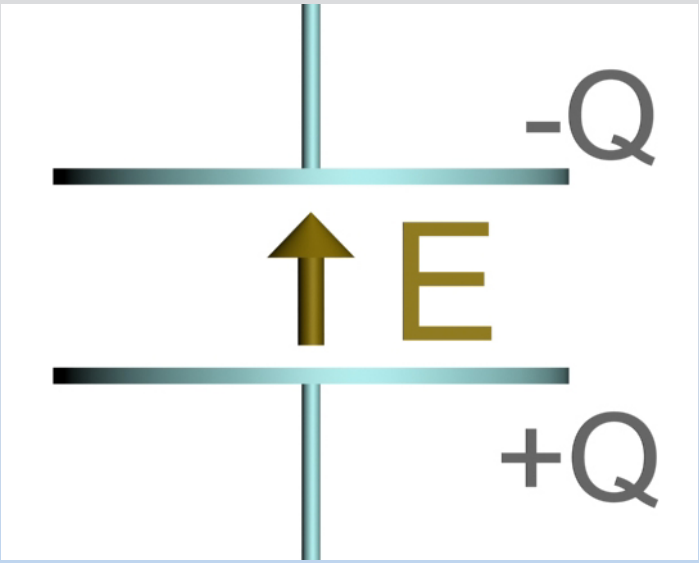

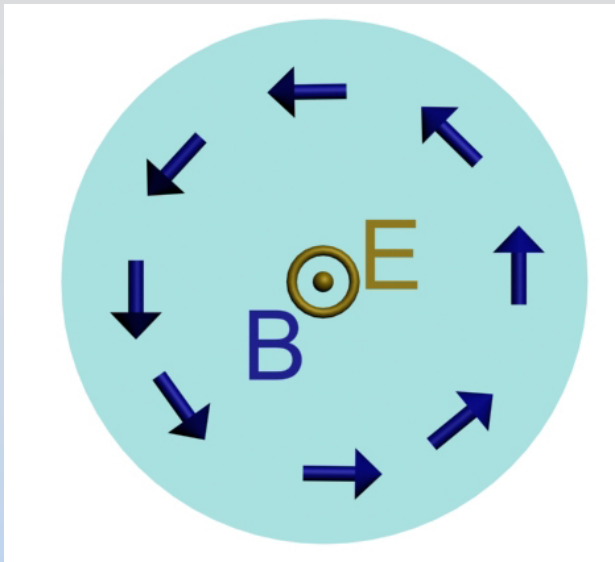

The figures above show a side and top view of a capacitor with charge *Q* and electric and magnetic fields E and B at time *t*. At this time the charge *Q* is:

1. Increasing in time
2. Constant in time.
3. Decreasing in time.
4. I don't know

8.02SC Physics II: Electricity and Magnetism

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