Announcements

- Happy Birthday Griffiths (and Ricky!)
- Homework
  - Homework 12 due tonight!
- Final
  - Coming at you Friday!
  - Due the 14th at 5pm
  - Probably looking at around 5-6 problems
  - Chapters 6 and 7 will be weighted a bit heavier, but it is comprehensive
  - Come the moment I send it out, my solutions sets will be locked down (figuratively)
  - Total learning objectives posted on Campuswire
- On Friday
  - Talking Maxwell's Laws
  - Class picture
  - And my evaluations!
    - I'm particularly interested how you felt about the way lectures were done this semester
- Read rest of Ch 7 for Friday

Q1

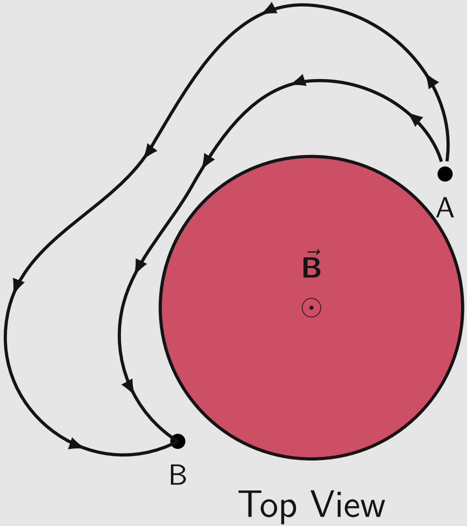
The current in an infinite solenoid with uniform magnetic field is increasing such that $B = B_0 + kt$. If you calculate the potential between points A and B along the two different paths shown, do you get the same answer?

A. Yes

B. No

C. Can't tell with current info

D. Only at certain times



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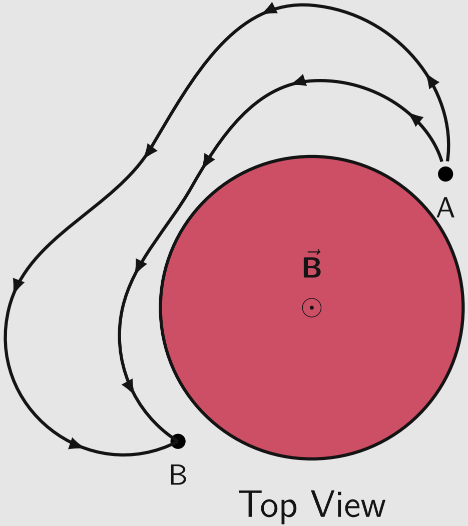


Q2

If the arrows represent an $\vec{\mathbf{E}}$, what can you say about the rate of change in the magnetic flux (perpendicular to the page) through the dashed region? Take positive flux to be out of the page.

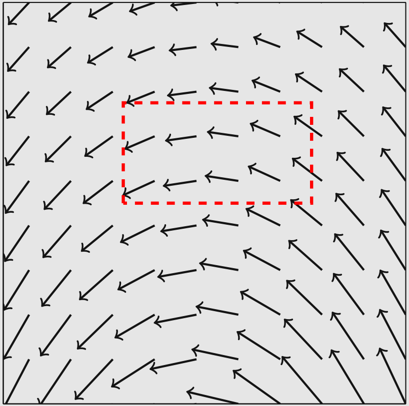
A. $\dfrac{\mathrm{d}B}{\mathrm{d}t} > 0$

B. $\dfrac{\mathrm{d}B}{\mathrm{d}t} < 0$

C. $\dfrac{\mathrm{d}B}{\mathrm{d}t} = 0$

D. Impossible to say

$$\vec{\mathbf{E}}(s, \phi, z) = \tfrac{c}{s}\hat{\phi}$$



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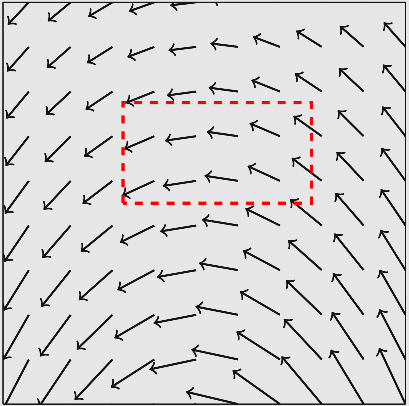

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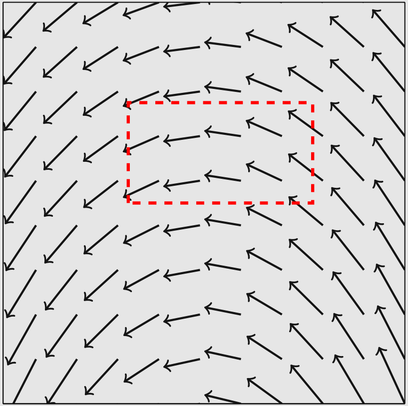

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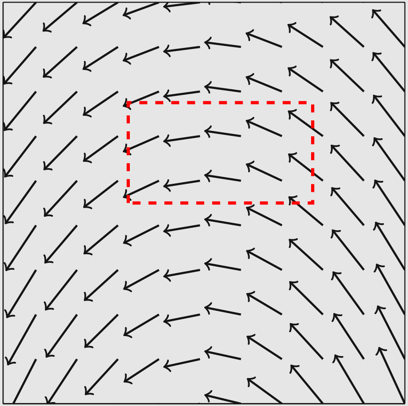

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Q4

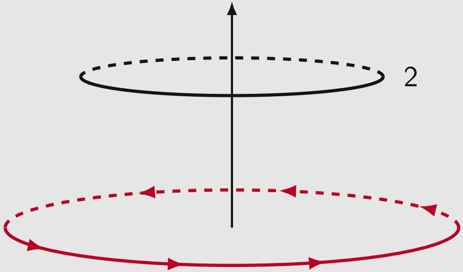
The current $\mathcal{I}_1$ in loop 1 is increasing. What is the direction of the induced current in loop 2, which is coaxial with loop 1?

A. Same direction as $\vec{\mathcal{I}}_1$

B. Opposite direction of $\vec{\mathcal{I}}_1$

C. There is no induced current

D. It depends on the distance between the loops



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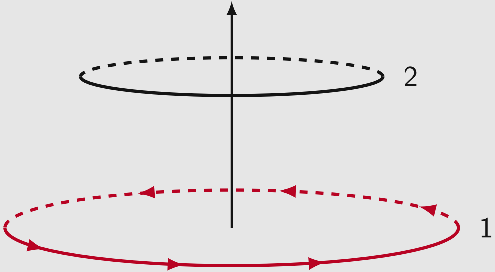

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Q6

A wire (1) is looped around a very long solenoid (2).

$\Phi_1 = M_{12}\mathcal{I}_2 =$ flux through loop 1 due to current in 2

$\Phi_2 = M_{21}\mathcal{I}_1 =$ flux through solenoid due to current in 1

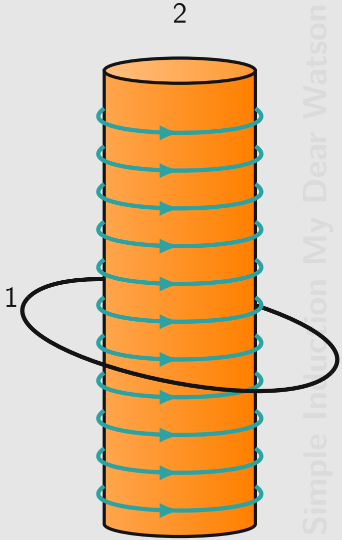
Which M is easier to compute?

A. M_{12}

B. M_{21}

C. They are equally difficult to compute

D. Can't say with this information



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