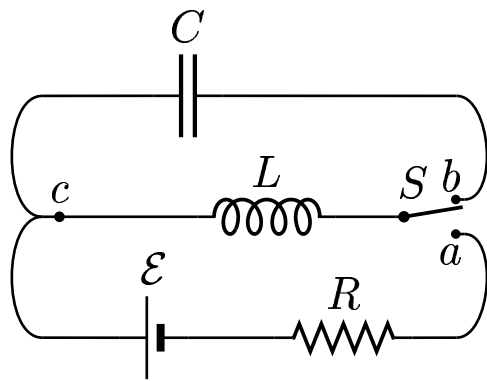


Given: A network containing a battery \mathcal{E} , and capacitor C , and resistor R and an inductor L .



Denote the angular frequency of the “LC” circuit by $\omega = \frac{1}{\sqrt{LC}}$.

The switch S is left at position a for a long period of time. The switch S is then moved from position a to b at $t = 0$.

Find the current through the inductor L .

- A) $I = I_{max} \cos \omega t$
- B) $I = I_{max} \sin \omega t$
- C) $I = I_{max} \cos \left(\omega t + \frac{\pi}{4} \right)$
- D) $I = I_{max} \sin \left(\omega t + \frac{\pi}{4} \right)$

Since the current is maximum at $t = 0$, the only satisfactory choice is $I = I_{max} \cos \omega t$.

Answer **A**.

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