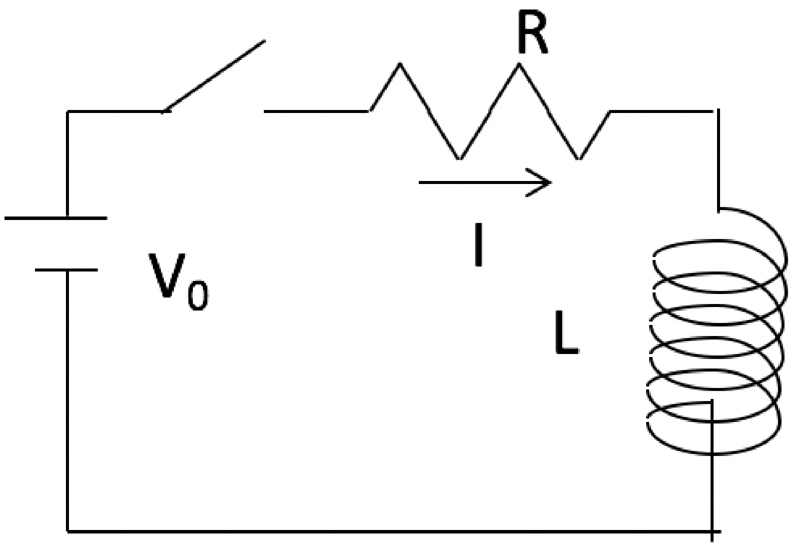
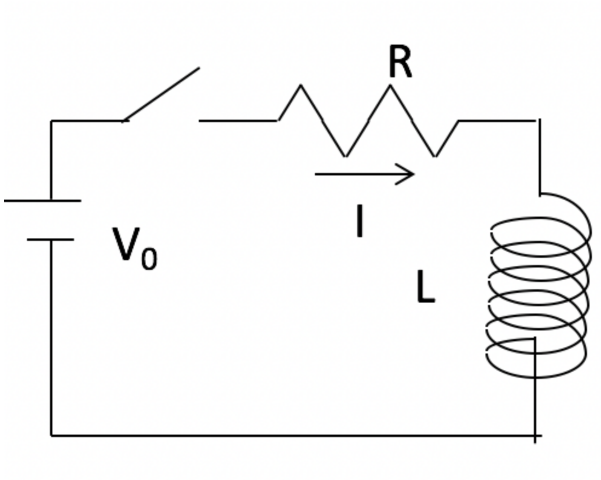
The switch is closed at $t = 0$. What can you say about $I(t = 0+)$?

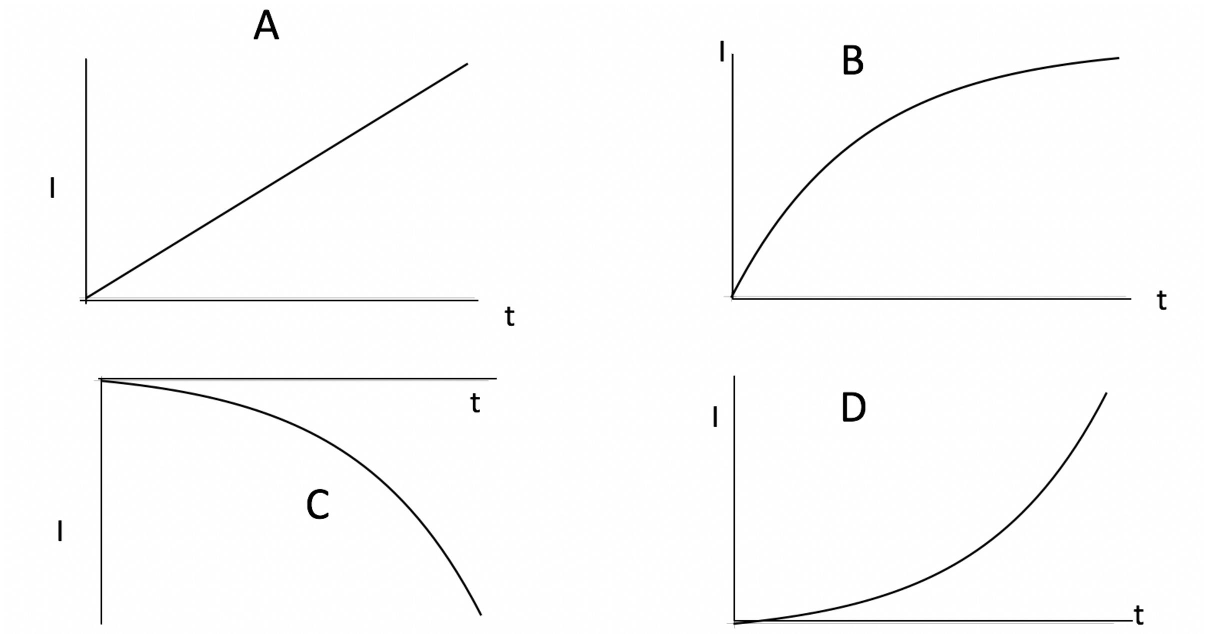
A. Zero
B. V_0/R
C. V_0/L
D. Something else!
E. ???



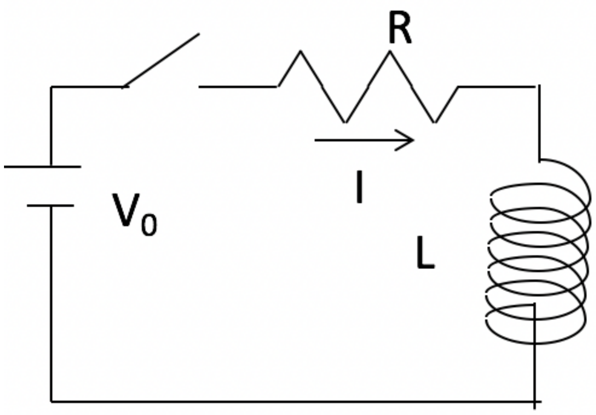
The switch is closed at $t = 0$. Which graph best shows $I(t)$ through the resistor?



E) None of these (they all have a serious error!)



The switch is closed at $t = 0$. What can you say about the magnitude of ΔV(across the inductor) at $(t = 0+)$?



A. Zero

B. V_0

C. L

D. Something else!

E. ???

The complex exponential: $e^{i\omega t}$ is useful in calculating properties of many time-dependent equations. According to Euler, we can also write this function as:

A. $\cos(i\omega t) + \sin(i\omega t)$
B. $\sin(\omega t) + i\cos(\omega t)$
C. $\cos(\omega t) + i\sin(\omega t)$
D. MORE than one of these is correct
E. None of these is correct!

What is $|2 + i|$?

A. 1
B. $\sqrt{3}$
C. 5
D. $\sqrt{5}$
E. Something else!

What is $(1 + i)^2/(1 - i)$?

A. $e^{i\pi/4}$

B. $\sqrt{2}e^{i\pi/4}$

C. $e^{i3\pi/4}$

D. $\sqrt{2}e^{i3\pi/4}$

E. Something else!

For the RL circuit with driving voltage of $V(t) = V_0 \cos(\omega t)$, we found a solution for the current as a function of time, with $I = 0$ at $t = 0$,

$$I(t) = a\cos(\omega t + \phi) - a\cos(\phi)e^{-Rt/L}$$

where $a = \frac{V_0}{\sqrt{R^2+L^2\omega^2}}$ and $\phi = \tan^{-1}(-L\omega/R)$. What happens to the current when $\omega \to \infty$?

A. Current is essentially zero, for all time
B. Current dies off completely, eventually goes to zero
C. Eventually, current is constant, V_0/R
D. It depends
E. ???