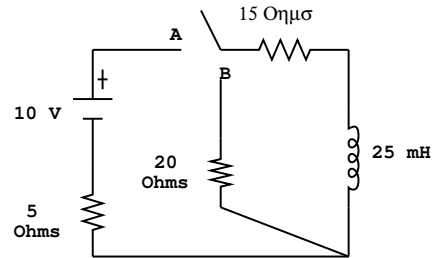


An R-L Circuit Problem

An R-L circuit is configured as shown in the diagram. Initially, the switch is open, and has been so for a very long time. At $t = 0$, the switch is closed on position A. After $400 \mu\text{s}$, the switch is moved to position B.



- a) Use Kirchoff's Laws to write a differential equation for the current when the switch is in position A.
- b) Find the voltage across the inductor just before the switch is moved to position B.
- c) Calculate the energy added to the circuit by the battery while the switch is in position A. Calculate the energy dissipated by resistors, and the energy stored in the inductor while the switch is in position A.
- d) Calculate an expression for the current as a function of time after the switch is moved to position B.
- e) Calculate the power dissipated by resistors while the switch is in position B. How does your answer compare to what you got in c)?