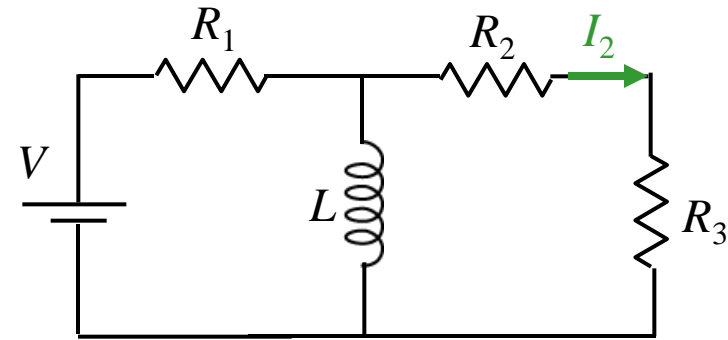


Calculation



The switch in the circuit shown has been open for a long time. At $t = 0$, the switch is closed.



$$I_L(t = 0+) = 0 \quad I_2(t = 0+) = V / (R_1 + R_2 + R_3)$$

What is the magnitude of V_L , the voltage across the inductor, immediately after the switch is closed?

- A) $V_L = V \frac{R_2 R_3}{R_1}$ B) $V_L = V$ C) $V_L = 0$ D) $V_L = V \frac{R_2 R_3}{R_1 (R_2 + R_3)}$ E) $V_L = V \frac{R_2 + R_3}{R_1 + R_2 + R_3}$

Kirchhoff's Voltage Law,

$$V_L - I_2 R_2 - I_2 R_3 = 0 \quad V_L = I_2 (R_2 + R_3)$$

$$V_L = \frac{V}{R_1 + R_2 + R_3} (R_2 + R_3)$$