

Problem 32.3

The steady-state current in the circuit is .5 A when the switch has been closed for a long time. When opened, the current goes to zero in 10 ms. The induced EMF in the inductor will be:

$$\begin{aligned}\mathcal{E}_{\text{induced}} &= -L \frac{\Delta i}{\Delta t} \\ &= -(2 \text{ H}) \left[\frac{(0 - .5 \text{ A})}{10 \times 10^{-3} \text{ s}} \right] \\ &= 100 \text{ V}\end{aligned}$$

