

Chapter 6, Solution 64.

(a) When the switch is in position A,

$$i = -6 = i(0)$$

When the switch is in position B,

$$i(\infty) = 12 / 4 = 3, \quad \tau = L / R = 1 / 8$$

$$i(t) = i(\infty) + [i(0) - i(\infty)]e^{-t/\tau}$$

$$i(t) = (3 - 9e^{-8t}) \text{ A}$$

(b) $-12 + 4i(0) + v = 0$, i.e. $v = 12 - 4i(0) = 36 \text{ V}$

(c) At steady state, the inductor becomes a short circuit so that

$$v = 0 \text{ V}$$