

13.44 In the network in Fig. P13.44, the switch opens at $t = 0$. Use Laplace transforms to find $i(t)$ for $t > 0$.

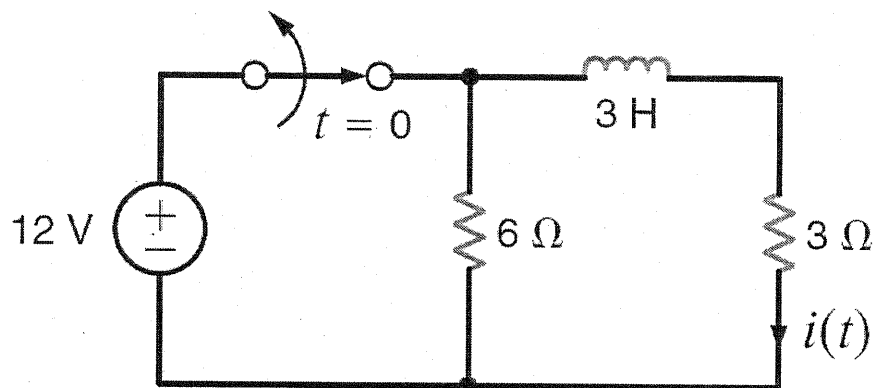
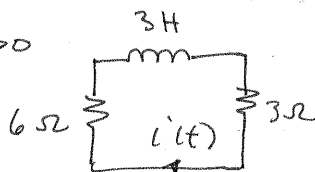


Figure P13.44

SOLUTION:

for $t < 0$ $i(0^-) = 12/3 = 4A$

for $t > 0$



$$3 \frac{di}{dt} + 3i(t) + 6i(t) = 0$$

$$3sI(s) - 3i(0^-) + 3I(s) + 6I(s) = 0$$

$$3I(s)[s+3] = 12$$

$$I(s) = \frac{4}{s+3}$$

$$i(t) = 4e^{-3t}u(t)$$