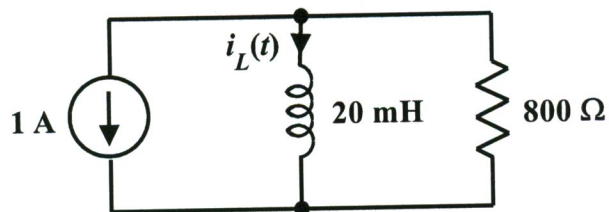


EE 2240  
Problem #10

If  $i_L(0) = 125 \text{ mA}$ , find an analytical expression for  $i_L(t)$  for  $t \geq 0$ .



$$i_L(\infty) = -1 \text{ A}$$

$$\tau = \frac{20 \text{ mH}}{800 \Omega} = 25 \mu\text{s}$$

$$i_L(t) = [i_L(0) - i_L(\infty)] e^{-t/\tau} + i_L(\infty)$$
$$= (1.125 e^{-40000t} - 1) \text{ A}, t \geq 0$$