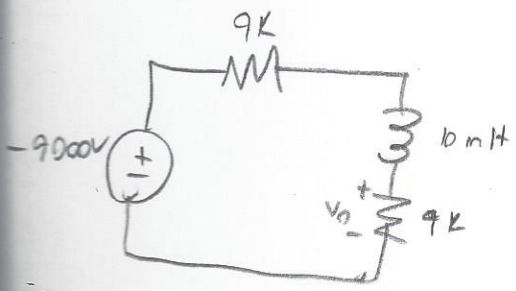
b) *Using whatever method you like (yes, anything, don't raise your hand to ask if you can use XXX)*, provide a ***symbolic expression*** for the voltage $V_0(t)$ for $t > 0$ in the **BOX BELOW.**

(17.5 points)

$$V_0(t) = i_L(t) R_3$$



$i_{L,0^+} = 1A$

$i_{L,\infty} =$

$t < 0$

$i_{L,0^-} = -1A$

$i_{L,0^+} = i_{L,0^-} = -1A$

$i_{L,\infty} = -0.5A$

$V_L = L\frac{di}{dt}$

$V_L = L\frac{di}{dt}$

$V_L(t)$

$\tau = \frac{L}{R_{eq}} = \frac{10 \times 10^{-3}}{15{,}000}$

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

$-0.5 + [-0.5 + 1] e^{-t/\tau}$

$-0.5 - 0.5 e^{-1.8 \times 10^{-6} t}$

$V_0(t) = 9000 \left[-0.5 - 0.5 e^{-1.8 \times 10^{-6} t}\right]$

$= -4500 - 4500 e^{-1.8 \times 10^{-6} t}$