

First order circuits 008

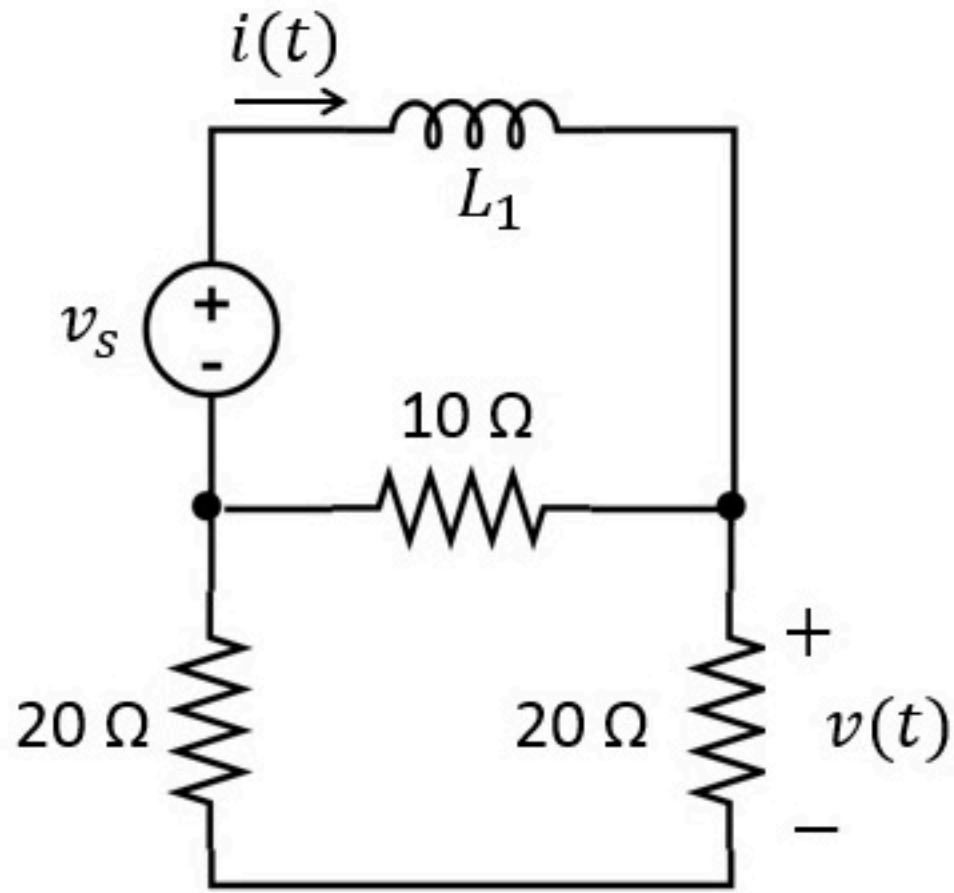
Unlimited Attempts.

When $t < 0$, $v_s = V_0$

When $t > 0$, $v_s = V_1$

Find $i(t) = A_1 + B_1 \cdot e^{-t/\tau_1}$ for $t > 0$

and $v(t) = A_2 + B_2 \cdot e^{-t/\tau_2}$ for $t > 0$



Given Variables:

$V_0 : 24\text{ V}$

$V_1 : 32\text{ V}$

$L_1 : 4\text{ mH}$

Calculate the following:

$A_1\text{ (A)} :$

4

✓

$B_1\text{ (A)} :$

-1

✓

$\tau_1\text{ (ms)} :$

0.5

✓

$A_2\text{ (V)} :$

16

✓

$B_2\text{ (V)} :$

-4

✓

$\tau_2\text{ (ms)} :$

0.5

✓

Hint: What is the current i_L for $t < 0$? Note where A and B are.