

Name _____

EE 2240

Final Exam

Wednesday, May 3, 2017

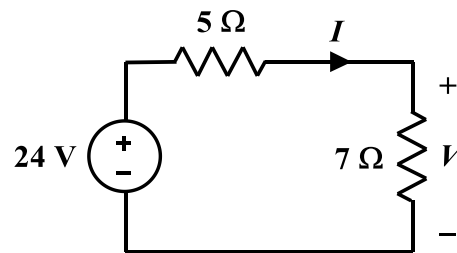
LIBR B07/B13 and TAB 115, 7:30AM – 9:30AM

[open book – any printed materials or notes you want – and calculator allowed, nothing else]

Choose any 5 of the following 6 problems to work for credit. Mark an “X” through the one you do not want graded. If you fail to do so, the first 5 will be graded – even if one of them is left blank.

Work must be shown in a neat and orderly fashion if you expect to receive partial credit.

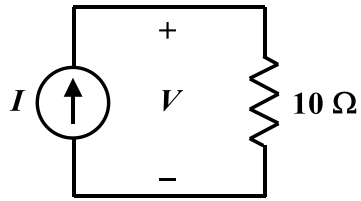
1. For the circuit shown:



(a) Determine the value of I .

(b) Determine the value of V .

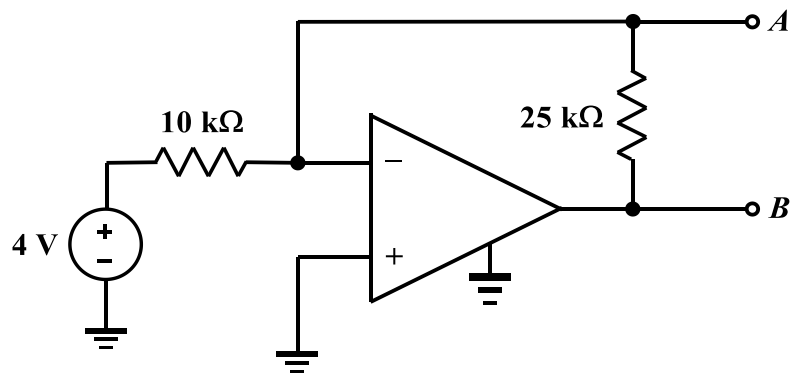
2. The resistor is dissipating 40 W.



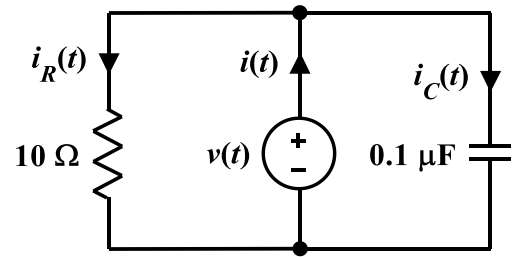
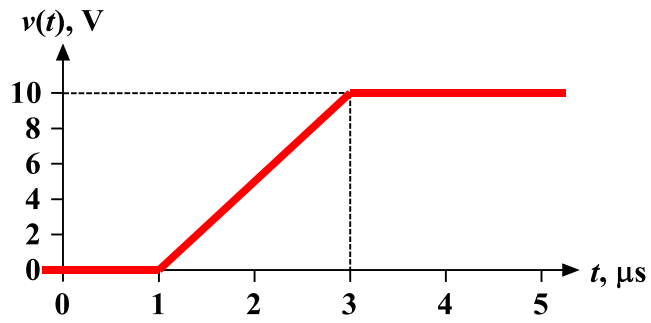
(a) Determine the value of I .

(b) Determine the value of V .

3. Find and sketch the Thévenin equivalent with respect to terminals A - B . Assume the OpAmp is ideal.



4. The voltage of the independent source in the circuit below is given graphically.

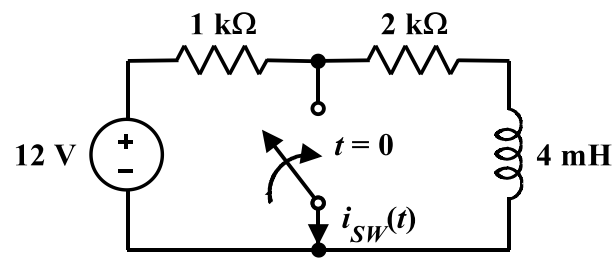


(a) Accurately sketch and label the current through the capacitor, $i_C(t)$.

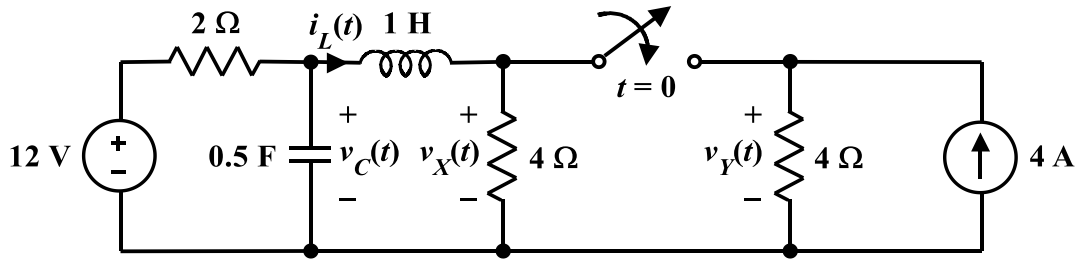
(b) Accurately sketch and label the current through the resistor, $i_R(t)$.

(c) Accurately sketch and label the current through the independent source, $i(t)$.

5. After being in the configuration shown for a very long time, the switch is closed at $t = 0$. Determine $i_{SW}(t)$ for $t \geq 0$.



6. The circuit shown below has reached the DC steady-state prior to $t=0$.



- (a) Determine the value of $v_C(0^-)$.
- (b) Determine the value of $i_L(0^-)$.
- (c) Determine the value of $v_X(0^-)$.
- (d) Determine the value of $v_Y(0^-)$.
- (e) Determine the value of $v_C(0^+)$.
- (f) Determine the value of $i_L(0^+)$.
- (g) Determine the value of $v_X(0^+)$.
- (h) Determine the value of $v_Y(0^+)$.
- (i) Determine the value of $v_C(\infty)$.
- (j) Determine the value of $i_L(\infty)$.
- (k) Determine the value of $v_X(\infty)$.
- (l) Determine the value of $v_Y(\infty)$.