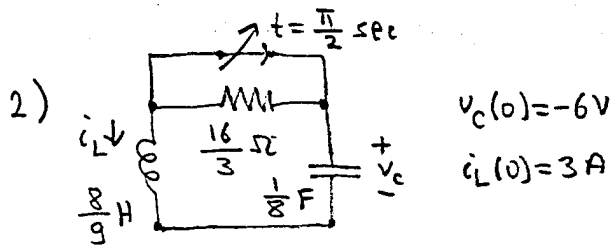
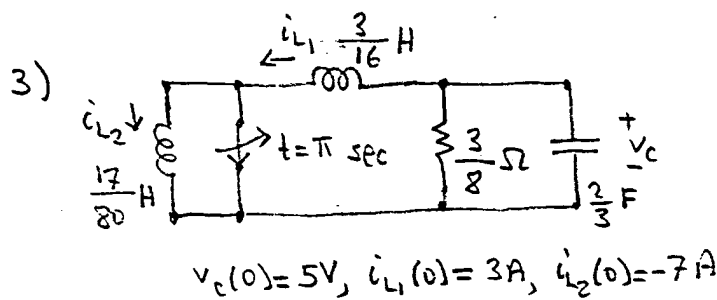


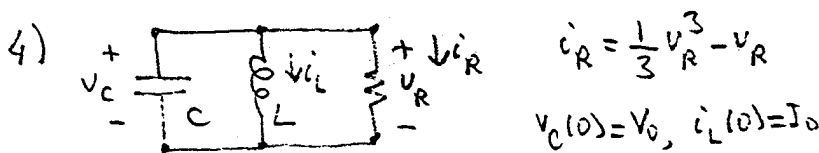
- (a) Find and sketch $v_c(t)$ and $i_L(t)$ for $t \geq -3 \text{ sec}$.
 (b) State and solve the dual problem.



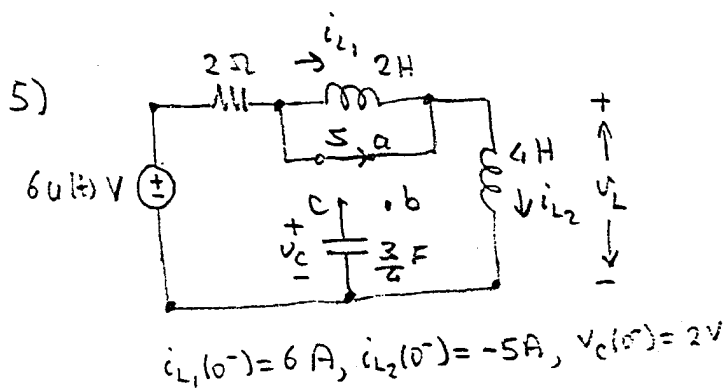
- (a) Find and sketch $v_c(t)$ and $i_L(t)$ for $t \geq 0$.
 (b) State and solve the dual problem.



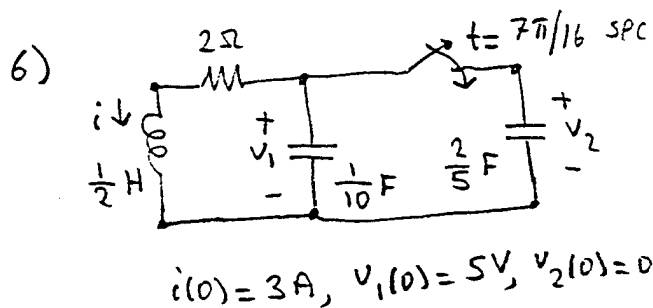
- (a) Find and sketch $v_c(t), i_{L1}(t)$ and $i_{L2}(t)$ for $t \geq 0$.
 (b) State and solve the dual problem.



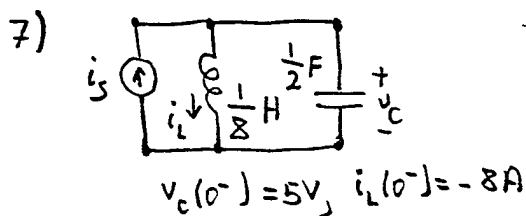
obtain the differential equations satisfied by $v_c(t)$ and $i_L(t)$.



The switch S is at position "a" at $t = 0^-$. It is thrown to position "b" at $t = \ln 4 \text{ sec}$ and then to position "c" at $t = \ln 32 \text{ sec}$. Find $i_{L1}(t), i_{L2}(t)$ and $v_L(t)$ for $t \geq 0$.



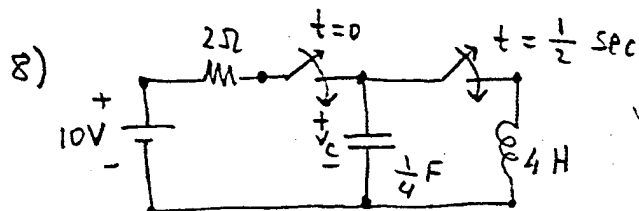
Find and sketch $i(t)$ and $v_L(t)$ for $t \geq 0$.



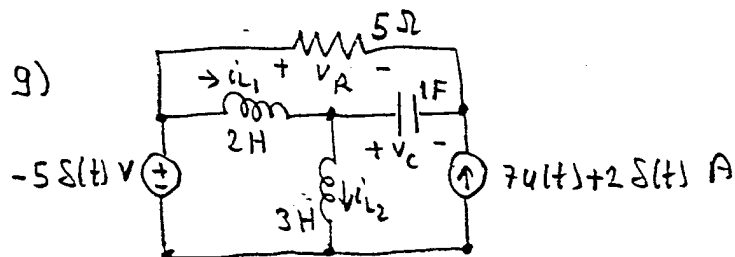
Find $v_c(t)$ and $i_L(t)$ for $t > 0$ when

(a) $i_s(t) = 10 \cos(3t) A$,

(b) $i_s(t) = 10 \cos(4t) A$.

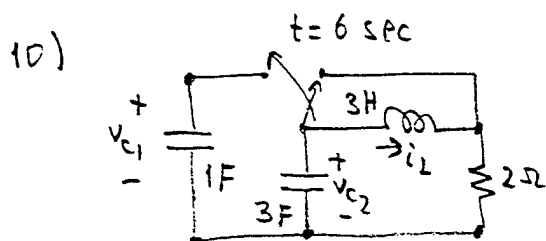


Find $v_c(t)$ for $t > 0$.



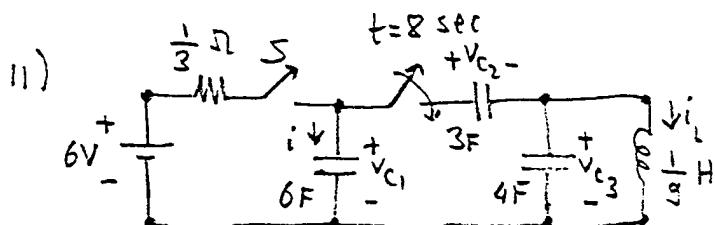
$v_c(0^-) = 6V, i_{L1}(0^-) = 8A, i_{L2}(0^-) = 2A$

Find $v_R(t)$ for $t > 0$.



$v_{c1}(0) = 18V, v_{c2}(0) = -10V, i_L(0) = -2A$

Find $v_{c2}(t)$ for $t > 0$.

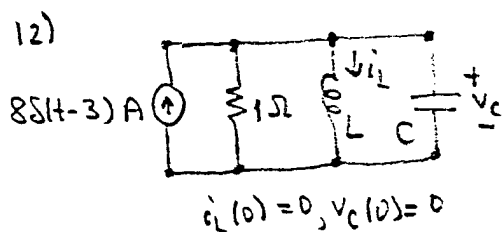


$v_{c1}(0^-) = -1V, v_{c2}(0^-) = 2V, v_{c3}(0^-) = 2V$

$i_L(0^-) = 0$

The switch S closes at $t=1$ sec and reopens at $t=7$ sec.

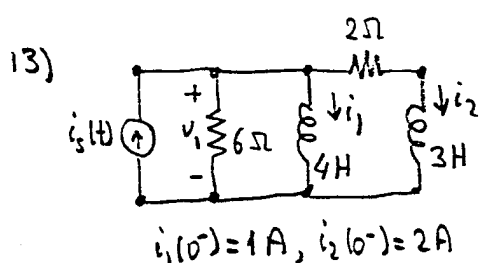
Find and sketch $i_L(t), i(t)$ and $v_{c1}(t)$ for $t > 0$.



$v_c(3^+) = 1V$ and the response is critically damped

(a) Determine L and C .

(b) Find $v_c(t)$ for $t > 0$.



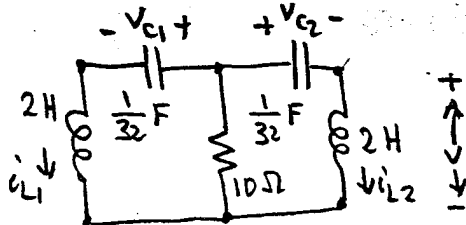
Determine $v_1(0^+)$ and $v_1(\infty)$ if

(a) $i_s(t) = \delta(t)$,

(b) $i_s(t) = u(t)$.

(c) Obtain the differential equation satisfied by $i_2(t)$.

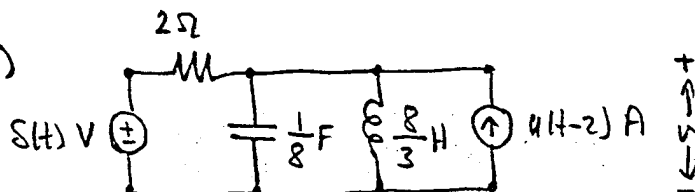
14)

(a) Find $v(t)$ for $t \geq 0$ given

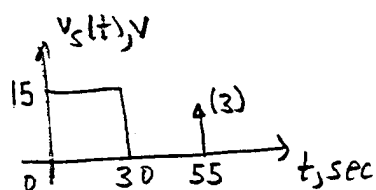
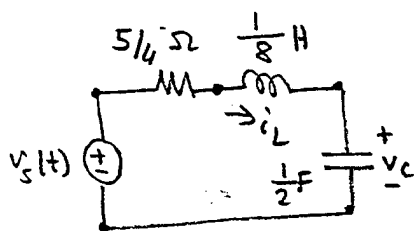
(a) $v_{c1}(0) = v_{c2}(0) = 10 \text{ V}$, $i_{L1}(0) = i_{L2}(0) = 2 \text{ A}$

(b) $v_{c1}(0) = v_{c2}(0) = 10 \text{ V}$, $i_{L1}(0) = 2 \text{ A}$, $i_{L2}(0) = 4 \text{ A}$.

15)

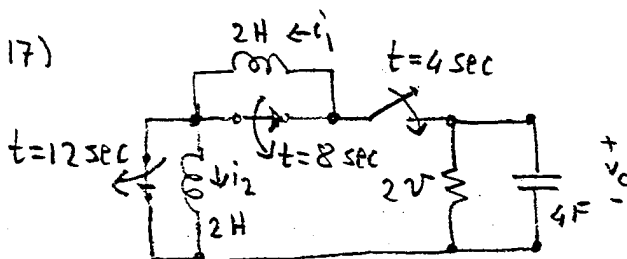
Find the zero-state response for $v(t)$, $t \geq 0$.

16)

Find and sketch $v_c(t)$ for $t \geq 0$.

$$v_c(0^-) = -3 \text{ V}, i_L(0^-) = 0$$

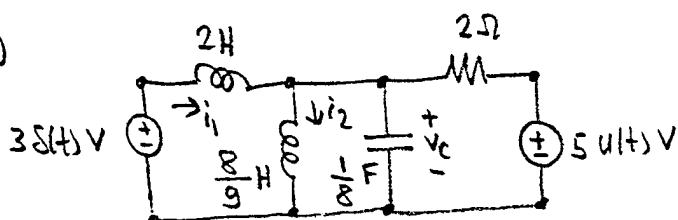
17)



$$i_1(0) = 1 \text{ A}, i_2(0) = -2 \text{ A}, v_c(0) = 5 \text{ V}$$

Find and sketch $v_c(t)$ for $t \geq 0$.

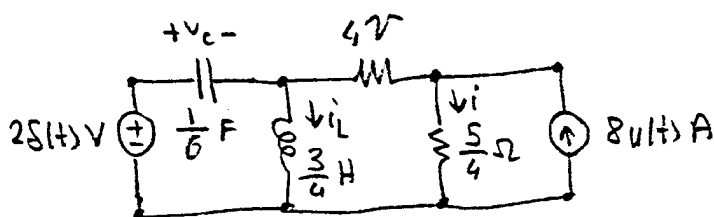
18)



$$i_1(0^-) = -4 \text{ A}, i_2(0^-) = 3 \text{ A}, v_c(0^-) = 2 \text{ V}$$

Find $i_1(t)$ for $t \geq 0^-$.

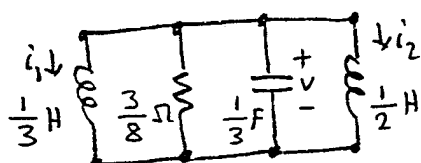
19)



$$v_c(0^-) = -3 \text{ V}, i_L(0^-) = 2 \text{ A}$$

Find and sketch $i(t)$ for $t \geq 0^-$.

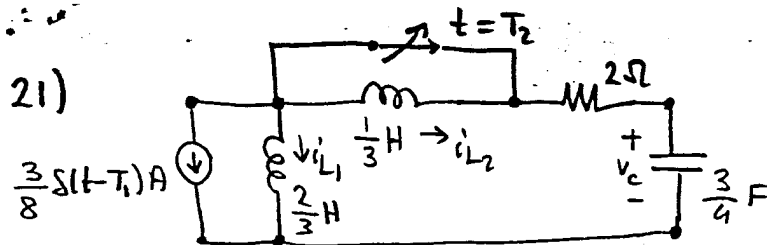
20)



$$v(0) = 3 \text{ V}, i_1(0) = 5 \text{ A}, i_2(0) = -8 \text{ A}$$

Find $i_1(t)$ for $t \geq 0$.

21)

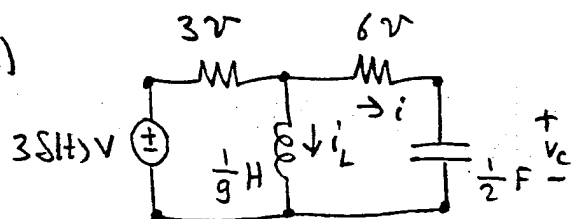


$$T_1 = \ln 2 \text{ sec}, T_2 = 2 \ln 2 \text{ sec}$$

$$v_C(0) = 3 \text{ V}, i_{L1}(0) = 0, i_{L2}(0) = \frac{3}{8} \text{ A}$$

Find $v_C(t)$ for $t > 0$.

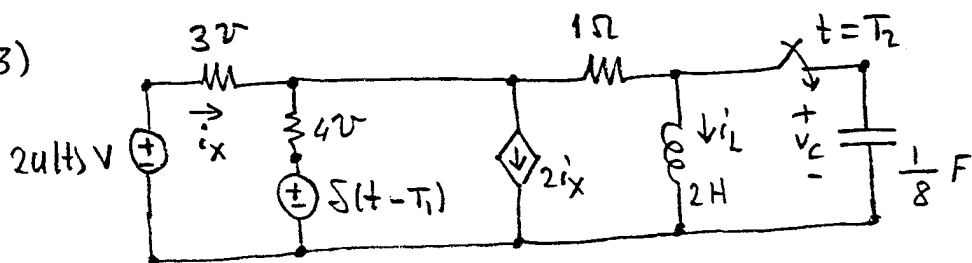
22)



$$v_C(0^-) = 2 \text{ V}, i_L(0^-) = -4 \text{ A}$$

(a) Find $v_C(0^+)$ and $i_L(0^+)$.(b) Obtain the differential equation satisfied by $v_C(t)$. Solve this equation and find $v_C(t)$ for $t > 0$.(c) Find $i(t)$ for $t > 0^-$.

23)

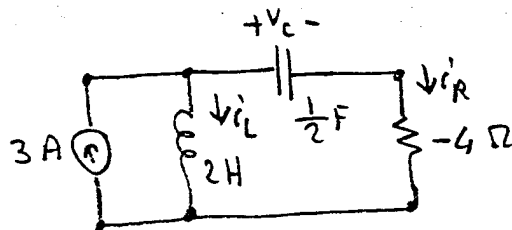


$$T_1 = \ln 4 \text{ sec}, T_2 = \ln 12 \text{ sec}$$

$$i_L(0^-) = 1 \text{ A}, v_C(0^-) = 10 \text{ V}$$

Find and sketch $i_L(t)$ for $t > 0$.

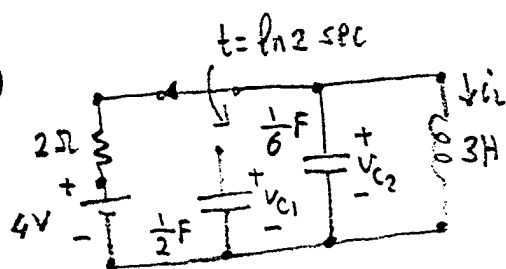
24)



$$i_L(0) = 5 \text{ A}, v_C(0) = 4 \text{ V}$$

Find $i_R(t)$ for $t > 0$.

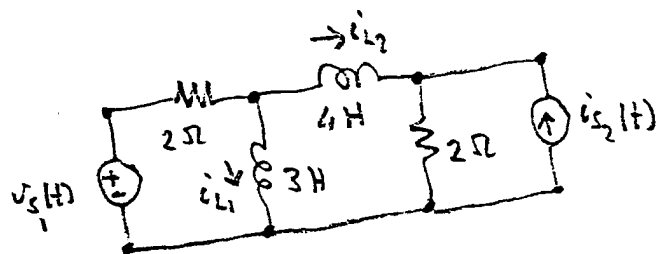
25)



$$v_{C1}(0) = 2 \text{ V}, v_{C2}(0) = 2 \text{ V}, i_L(0) = \frac{10}{3} \text{ A}$$

Find and sketch $v_{C2}(t)$ for $t > 0$.

26)



$$i_{L1}(0) = I_1, i_{L2}(0) = I_2$$

Obtain the differential equations satisfied by $i_{L1}(t)$ and $i_{L2}(t)$.