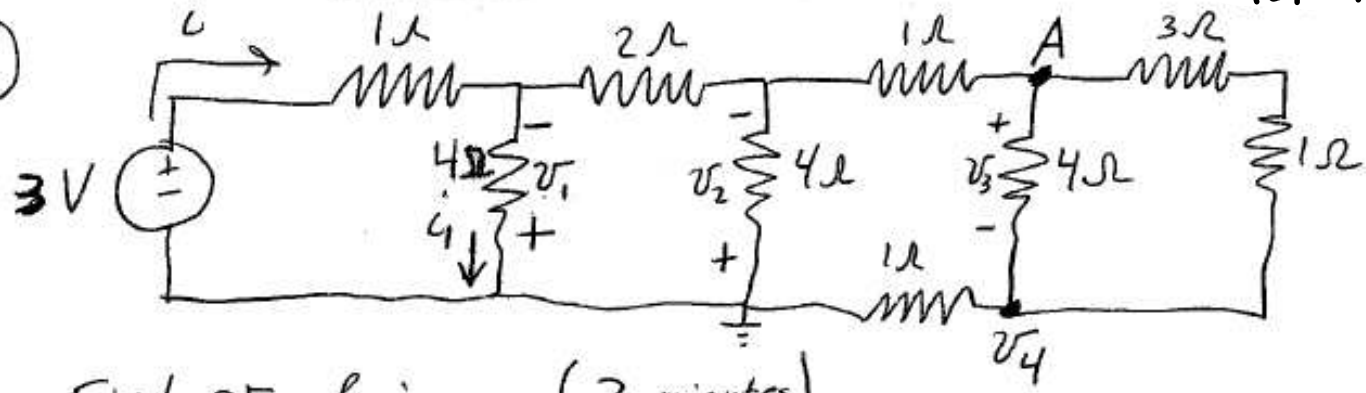
Practice Problems

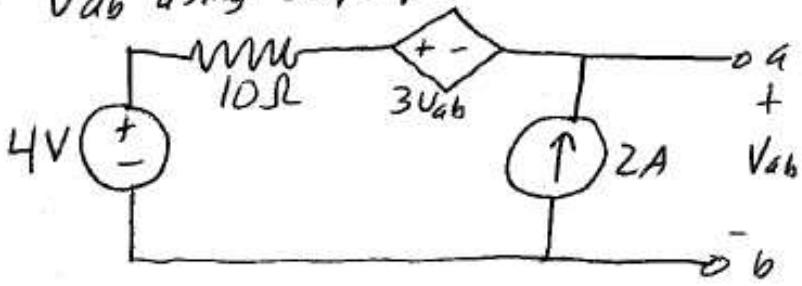
(1)



Find v_1 & i_1. (2 minutes)

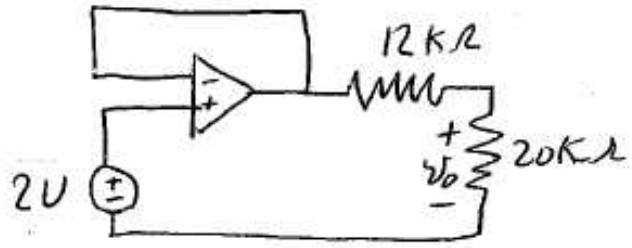
(2) Write a KCL equation for node A in terms of v_2, v_3 and v_4. (5 min.)

(3) Find V_{ab} using superposition in the following circuit



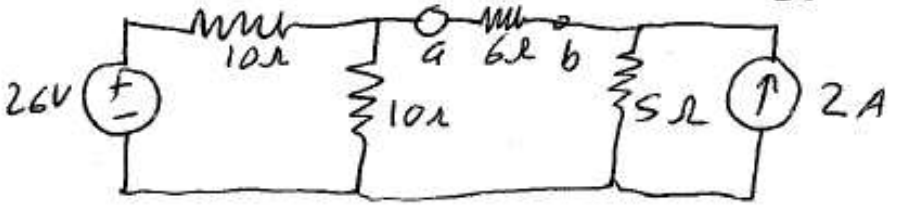
(10 min)

(4)



Find v_o. (5 min.)

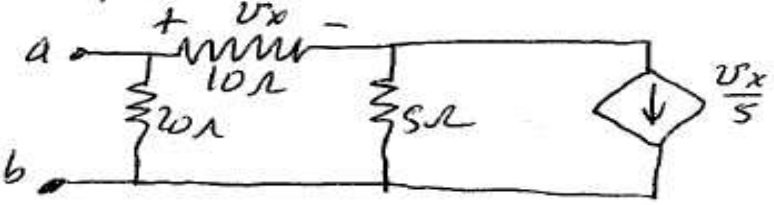
(5) Find the Thevenin & Norton Equivalent of from the perspective of a & b.



(5 min.)

What would you replace the 6Ω resistor with to get maximum power?

(6) What is the equivalent resistance as seen by a & b:



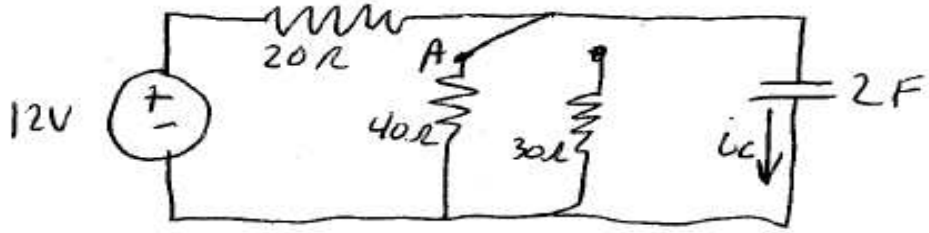
(15 min)

(7) Assuming a switch has been in position A for a long time and is moved to position B at $t=0$.

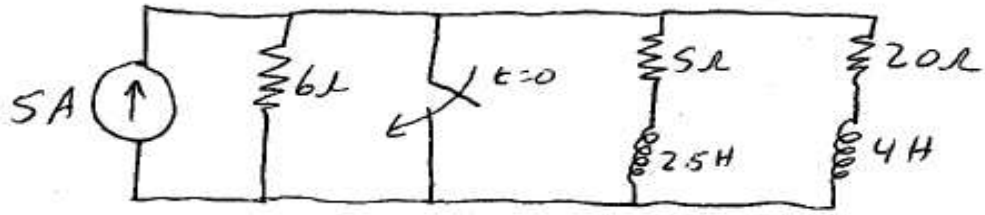
a) What is $i_c(0^+)$?

b) What is $v_o(t)$ for $t \geq 0$?

(20 min.) 10-

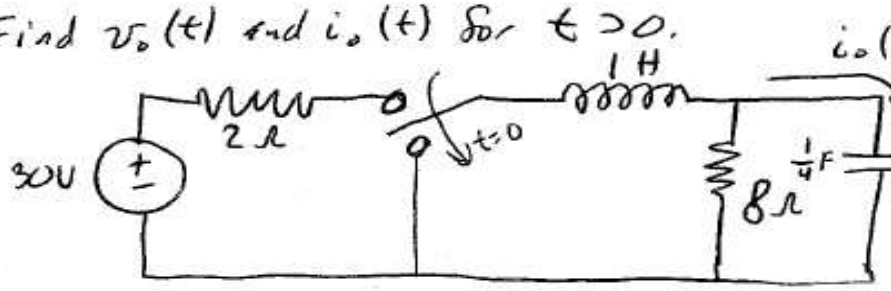


(8) Find $i_1(t)$ and $i_2(t)$ for $t > 0$ in the circuit below.



(15 min.)

(9) Find $v_o(t)$ and $i_o(t)$ for $t > 0$.



(20 min.)

What would R have to be to make this a critically damped circuit?