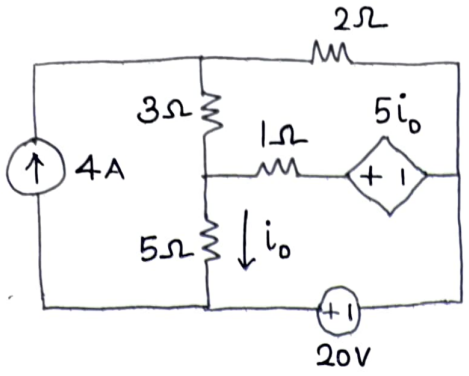
Problem Set - 2

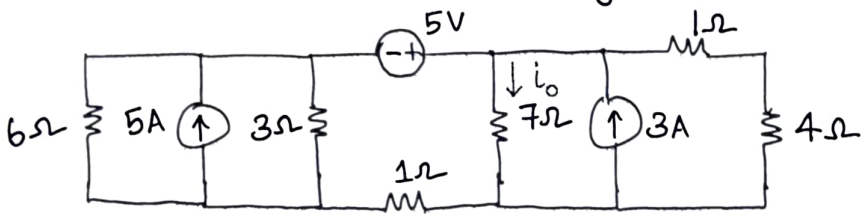
06 August 2024 10:44

① 

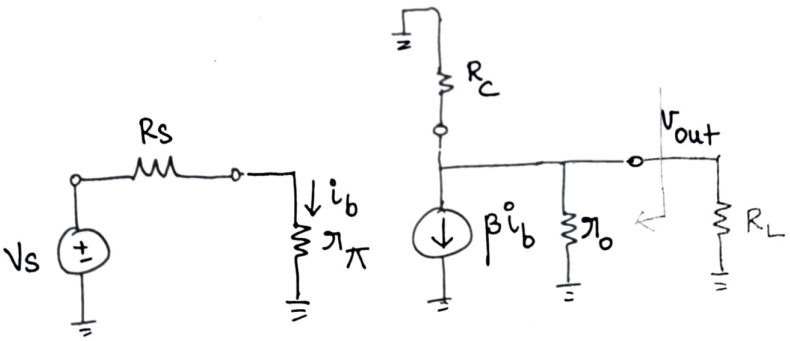
(a) What kind of a dependent source is there in the circuit?

(b) Find i_o in the circuit using superposition.

② Find i_o in the circuit below using source transformation.

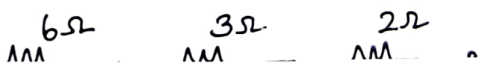


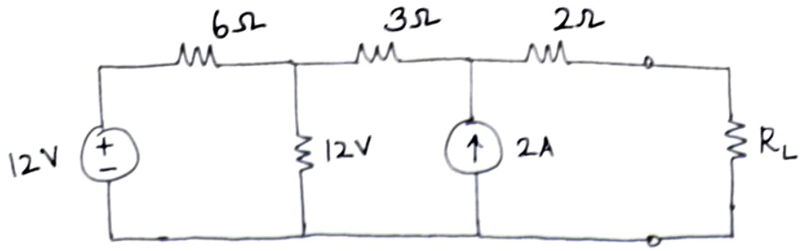
③ Find the Thevenin & Norton equivalent of the following circuit (at V_{out}). Do both independently for good practice.



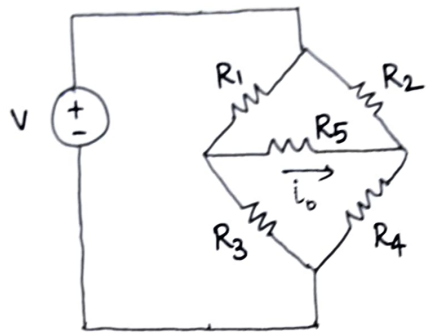
Have you seen the circuit in the box somewhere?

④ Find the value of R_L for maximum power transfer (to R_L) in the circuit.





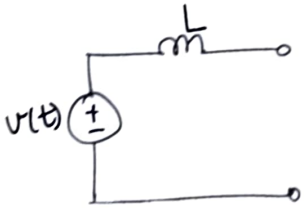
(5)



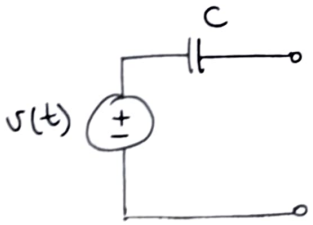
Assume R_1, R_2 and R_3 are fixed resistances.

How do you choose R_4 so that $i_o = 0$?

(6) Find the equivalent Norton representation of the following circuits



(a)



(b)

(7) Solve the following problems from the book (called as HKD) "Engineering Circuit Analysis" by Hayt, Kemmerly and Durbin, 8e Indian edition.

(a) Pg: 159 . Problem 1

(b) Pg: 161 . Problem 9

(c) Pg: 169 . Problem 51

(d) Pg: 170 . Problem 56 (We have not covered this in class but it is a useful technique to know)