EE210: Analog Electronics

Question Set 1

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1) : Find the Norton's and Thevenin's equivalent circuit for the following network.

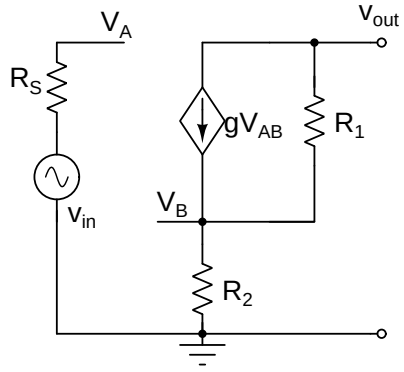

Fig. 1. Problem -1

2) : Find the output impedance (impedance looking into the ports shown in blue) for the following networks in Fig. 2-4.

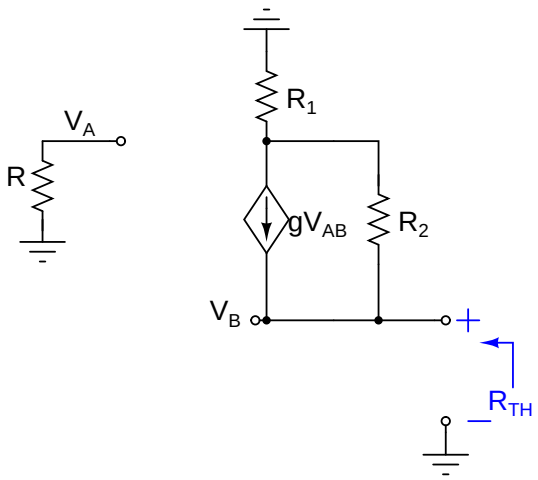

Fig. 2. Problem -2(a).

3) : You have procured a source which has two output terminals as shown in Fig. -3.

The black box which is supposed to contain the source has the following properties. If you apply a voltmeter across A and B, it reads 10 V. If you apply an ammeter across the terminals it reads 1 A. Consider the measuring equipments to be ideal.

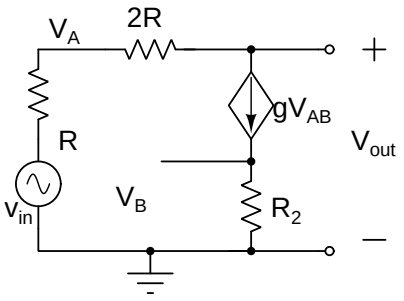

Fig. 3. Problem -2(b).

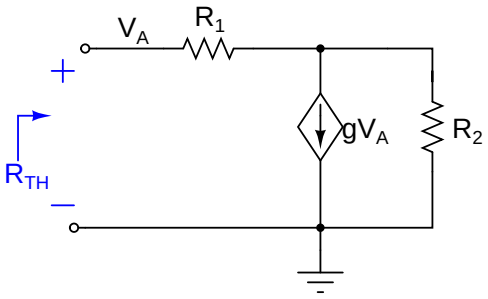

Fig. 4. Problem -2(c).

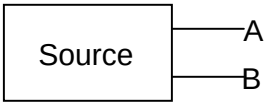

Fig. 5. Problem -3

a) : In your opinion is the source that you procured a voltage source or a current source?

b) : Is your answer of the previous question dependent on the type of load that you want to drive? If yes, what is the constraint which will make the source behave like a voltage source, or a current source? If no, justify your answer.