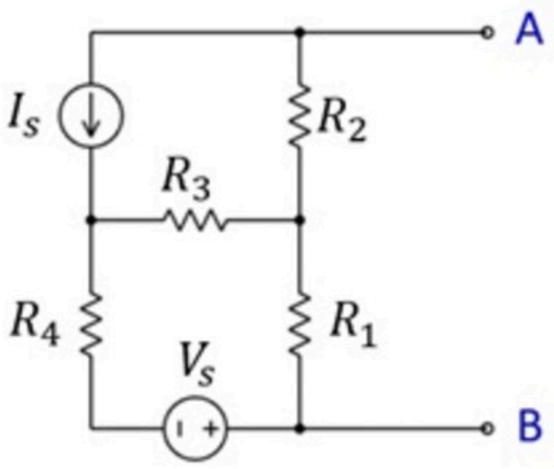
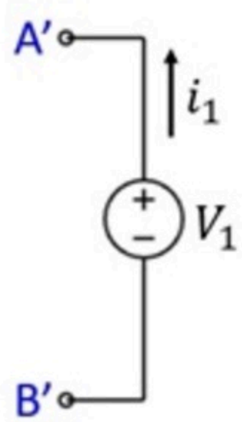
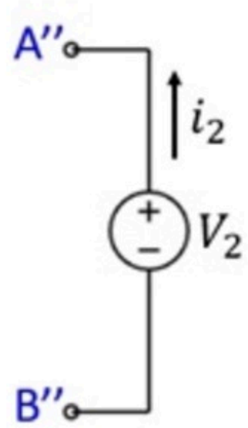
Circuit theorems 013

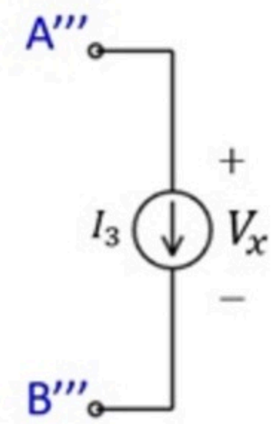
No more attempts left.

Consider the circuit on the left. You are not given the values of V_S, I_S, R_1, R_2 or R_3.









You are told the value of current i_1 if V_1 is attached to this circuit, with A connected to A' and B connected to B'.

You are also told the value of current i_2 if V_2 is attached, with A connected to A'' and B connected to B''. However, in this case, the independent sources were first turned off (i.e., $V_S = 0$ and $I_S = 0$).

Your task is to find V_x if current source I_3 is connected to the original circuit (i.e., with the independent sources V_S and I_S not turned off), with A connected to A''' and B connected to B'''.

Given Variables:

V1 : 6 V

i1 : 12 A

V2 : 12 V

i2 : 12 A

I3 : -7 A

R4 : 2 ohm

Calculate the following:

Vx (V) :

Hint: Redraw the circuit on the left as its Thevenin equivalent model