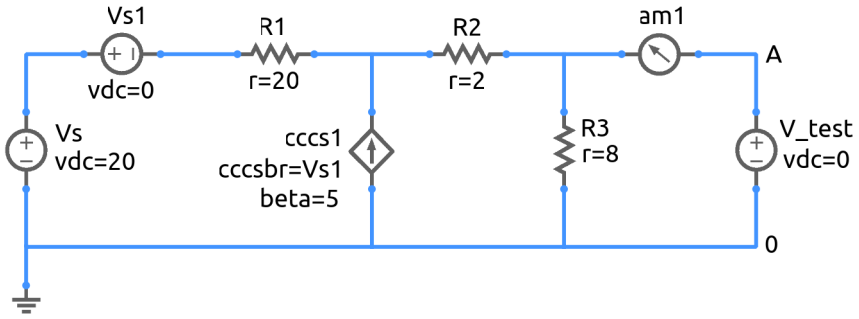
ee101_network_6.sqproj



In the circuit shown in the figure, the current through the CCCS is given by $\beta\, I_{Vs1}$. We are interested in finding the Thevenin equivalent circuit as seen from the port A-0.

Exercise Set

1. Find the Thevenin voltage $V_{Th} = V_{OC}$ (on paper).

2. Find the Thevenin resistance R_{Th} (on paper) by deactivating the independent source (V_S), applying a test voltage source (voltage V_{test}) between A and 0, and finding the current (I_{test}) through the test source. R_{Th} is then given by $R_{Th} = V_{\text{test}}/I_{\text{test}}$.

3. To check your V_{Th} and R_{Th} values, run the simulation, and plot the current through the ammeter versus V_{test}. The y-intercept gives the short-circuit current I_{SC}, the x-intercept gives the open-circuit voltage V_{OC} (which is the same as V_{Th}), and R_{Th} is then given by $R_{Th} = V_{OC}/I_{SC}$.