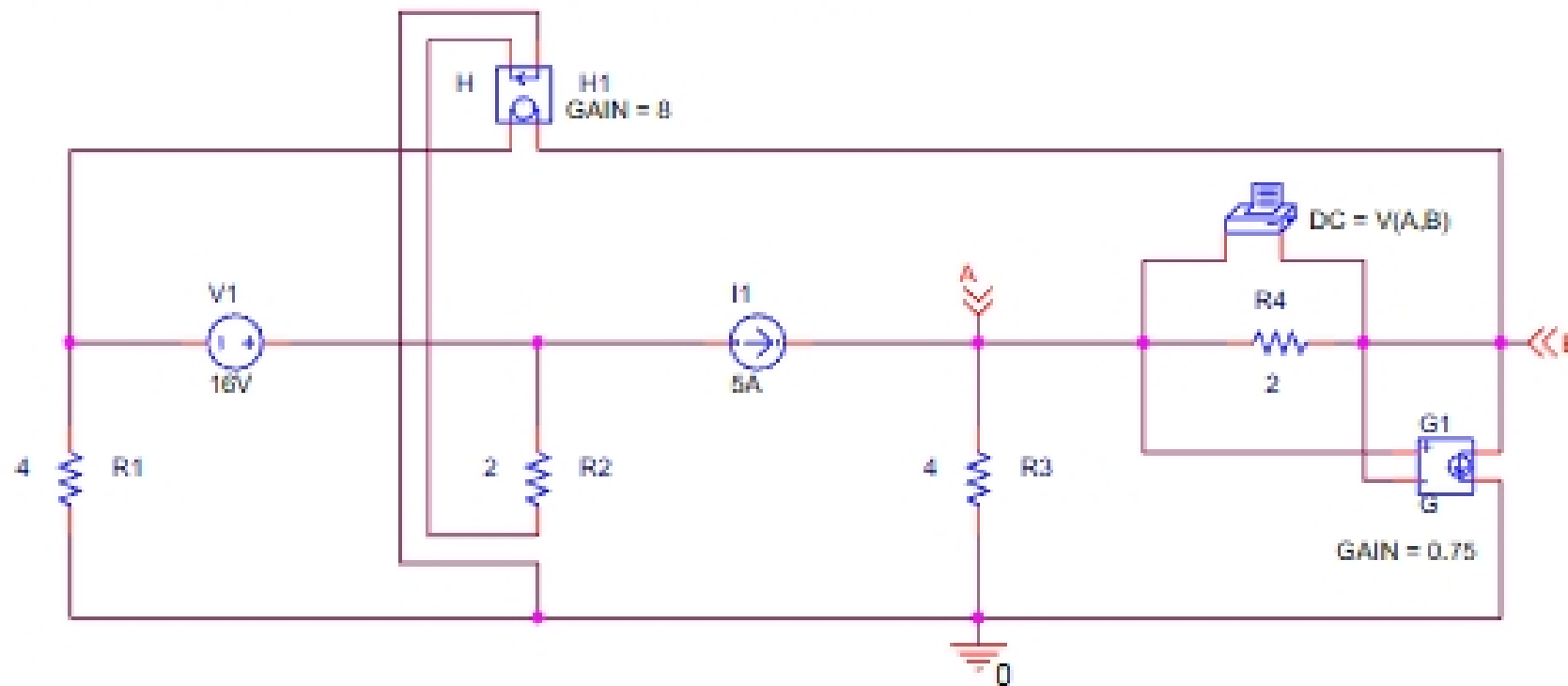


Analyzing Circuits with Dependent Sources

Purpose: Analyze the circuit shown below to determine the voltage $V(A, B)$. Compare the appearance of this circuit to the same problem from a textbook shown on the next page. Dependent sources have a very different appearance.

Analysis: A DC Sweep will be used to vary the independent voltage source from 16V to 16V (the voltage printer will not work unless a DC sweep is performed).



Notes:

- 1) The 4 types of dependent sources are called E, F, G, and H and are found in the ANALOG library.
 - E = voltage-controlled voltage source
 - F = current-controlled current source
 - G = voltage-controlled current source
 - H = current-controlled voltage source
- 2) When placing dependent sources, keep in mind that the round symbol is the source and the polarity or the arrow are connected to the control variable. Be sure that the correct polarity or current direction are used both for the source and for the control variable.
- 3) Be sure to set the GAIN property on the dependent source to the appropriate value. The default value is 1. The GAIN property is not automatically displayed, so:
 - A) Double-click on the dependent source to edit its properties
 - B) Right-click on the GAIN property in the screen for editing properties and change the Display Format to Name and Value.
 - C) Go back to the schematic and the GAIN property should now be displayed. Double-click on it to change its value.

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Problem 4.33 (from Electric Circuits by Nilsson)
 Find the voltage V_1 .
 (Answer: 8V)

