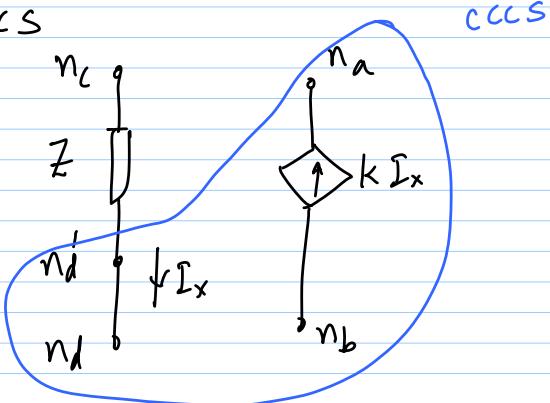


31-1-15

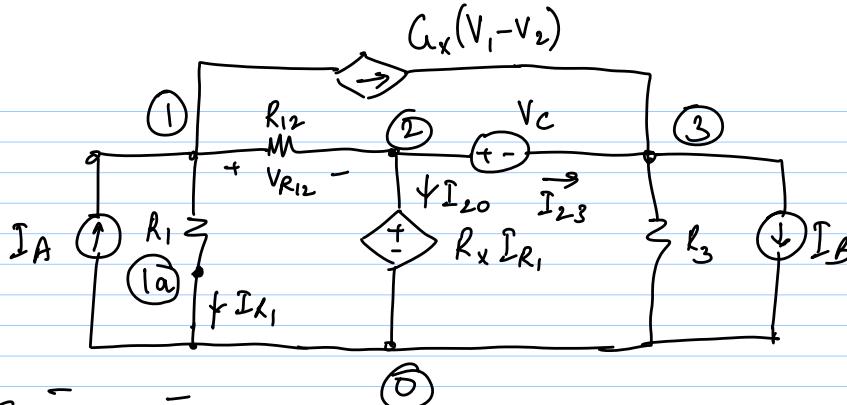
Lec 9

7) CCCS



CCCS

$$KCL @ n_a \begin{bmatrix} 0 & 0 & 0 & 0 & -k \\ h_b & 0 & 0 & 0 & +k \\ h_t' & 0 & 0 & 0 & +1 \\ h_d & 0 & 0 & 0 & -1 \\ 0 & 0 & +1 & -1 & 0 \end{bmatrix} \begin{bmatrix} V_a \\ V_b \\ V_d' \\ V_d \\ I_x \end{bmatrix} = \begin{bmatrix} 0 \end{bmatrix}$$

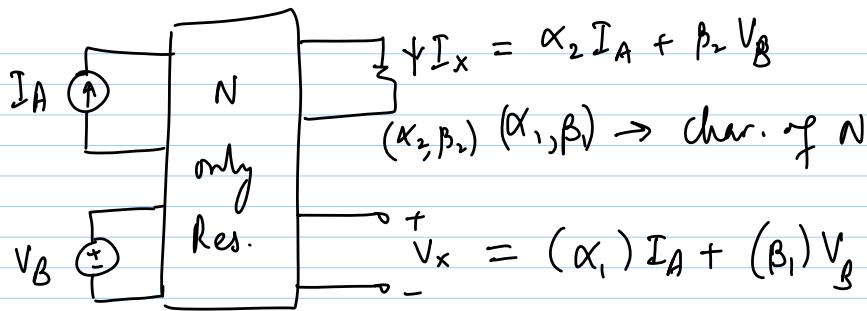


$$[G] \bar{V} = \bar{I}$$

$V =$

$$\begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ V_{1a} \\ I_{20} \\ I_{R1} \end{bmatrix}$$

$$[G] \begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ V_{1a} \\ I_{20} \\ I_{R1} \end{bmatrix} = \begin{bmatrix} \bar{V} \end{bmatrix}$$



$$\left. \begin{array}{l} (\mathcal{I}_{A_1}, V_{B_1}) \rightarrow V_{X_1} \\ (\mathcal{I}_{A_2}, V_{B_2}) \rightarrow V_{X_2} \end{array} \right\} \text{given} \Rightarrow \text{find out } \alpha_1, \beta_1$$

$(I_{A_3}, V_{B_3}) \Rightarrow$ Can find out V_{X_3}

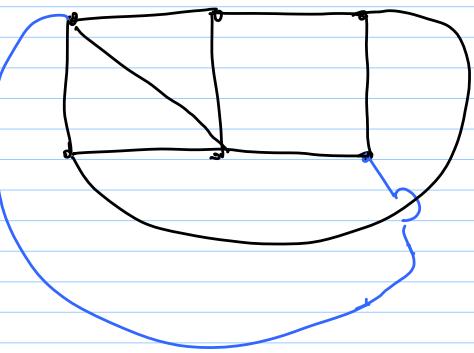
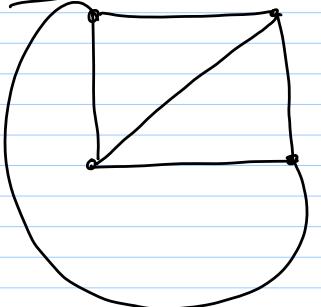
If V_x is known for S unique values of source

For a linear network \Rightarrow "Superposition" is applicable

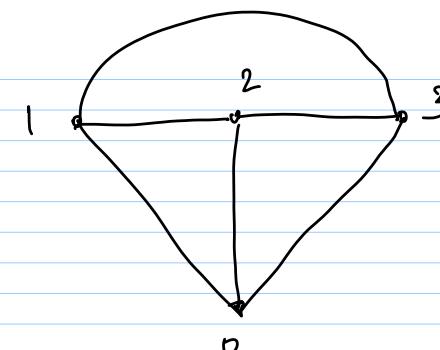
Mesh Loop Analysis

planar graph

Mesh – planar loop

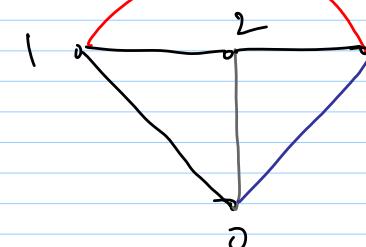


$$\left. \begin{array}{l} B \text{ branches} \\ N \text{ nodes} \end{array} \right\} B - N + 1$$



$B - N + 1$ KVL
equations

1 11



The diagram shows two 2D base diagrams, labeled L #1 and L #2, which are used to construct a 3D structure. The top diagram, L #1, consists of four vertices labeled 1, 2, 3, and 0. Vertex 1 is at the bottom left, 2 is at the top center, 3 is at the top right, and 0 is at the bottom right. A curved arrow points from vertex 1 to vertex 3. The bottom diagram, L #2, also has four vertices labeled 1, 2, 3, and 0. Vertex 1 is at the bottom left, 2 is at the top center, 3 is at the top right, and 0 is at the bottom right. A curved arrow points from vertex 1 to vertex 3. These base diagrams are then used to form a 3D structure where the vertices are connected in a specific arrangement.

A diagram of a closed curve on lined paper. The curve starts at point 1 (top), goes right to point 2 (top-right), then down to point 3 (bottom-right), then left to point 4 (bottom), and finally up to point 1. Points 1, 2, and 3 are marked with small circles.

