

Special Problem 4.3-13

1. Perform an **even-odd** mode analysis on the circuit below to determine its admittance matrix parameters Y_{11} , Y_{21} , Y_{31} , and Y_{41} .

You must use **even-odd mode analysis** to find the answer!

2. Note this circuit is symmetric and reciprocal. Use these facts (and only these facts!) to additionally determine all the **other** admittance matrix parameters that are **possible** to infer from the solutions (e.g., Y_{11} , Y_{21} , Y_{31} , and Y_{41}) found above.

Do **not analyze** the circuit to find these other values—use **only** the previous solutions (e.g., Y_{11} , Y_{21} , Y_{31} , and Y_{41}) and the properties of **symmetry** and **reciprocity**.

Hint: Note that **not all** of the admittance matrix parameters can be determined from Y_{11} , Y_{21} , Y_{31} , and Y_{41} . Determine **only** those that can be inferred from the circuit symmetry and reciprocity.

