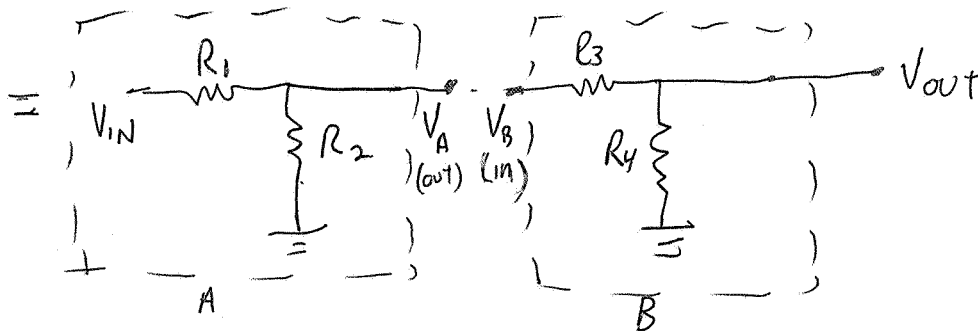
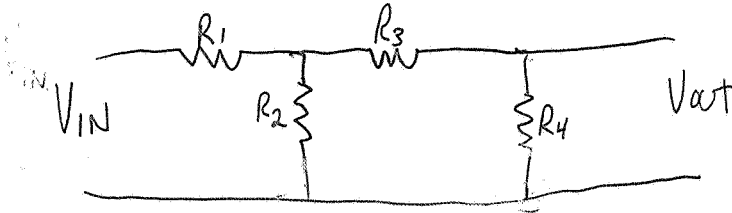


Thevenin - An Illustration

The following network can be considered 2 voltage dividers in series



When the networks are connected, what is V_{out} ?

You might say "the product of each voltage divider output", ie,

$$(1) \quad V_{IN} \left(\frac{R_2}{R_1 + R_2} \right) \left(\frac{R_4}{R_3 + R_4} \right) \stackrel{?}{=} V_{out}, \text{ but you'd be WRONG}$$

NOT!

Instead, calculate Thevenin equivalent of circuit A:



Thevenin Equivalent of A

Actual B

$$(2) \quad \text{Thus: } V_{IN} \frac{R_2}{R_1 + R_2} \cdot \frac{R_4}{(R_1 || R_2) + R_3 + R_4} = V_{out}$$

Can you do this by inspection yet?

Compare (1) and (2). (2) is general, and reduces to (1) only for Circuit B not to load Circuit A,

$$\underline{R_1 || R_2 \ll R_3 + R_4}, \text{ OR } R_{A \text{ OUT}} \ll R_{B \text{ IN}}$$