

**Indian Institute of Technology, Delhi**  
**ELL112/EEL 202: Circuit Theory**  
**Tutorial 6, September 8 2014**

1. For the circuit in Fig. 1, evaluate  $V_{out}(j\omega)/V_{in}(j\omega)$ .
2. For the circuit in Fig. 2, compute  $\left| \frac{V_{out}(j\omega)}{V_{in}(j\omega)} \right|^2$ .
3. Prove that for a passive reciprocal network,  $AD - BC = 1$ , where the parameters  $A, B, C, D$  are the elements of the transmission matrix.
4. In the circuit in Fig. 3, compute  $V_{out}/V_{in}$  given the transmission parameters.
5. Compute the  $Z, Y, H$ , and  $G$  parameters for an ideal  $n : 1$  transformer.
6. For the circuit in Fig. 4, evaluate the  $Z, Y, H$  and  $G$  parameters.

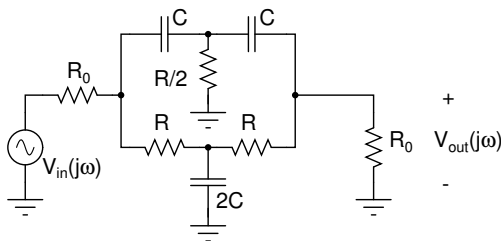


Figure 1

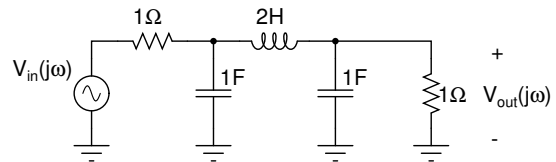


Figure 2

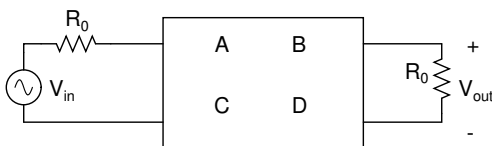


Figure 3

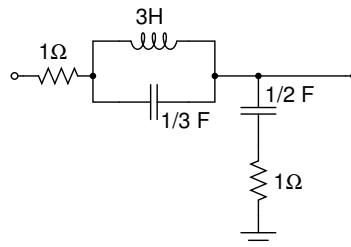


Figure 4