

14.44 Determine the transfer function $\mathbf{I}_o(s)/\mathbf{I}_i(s)$ for the network shown in Fig. P14.44.

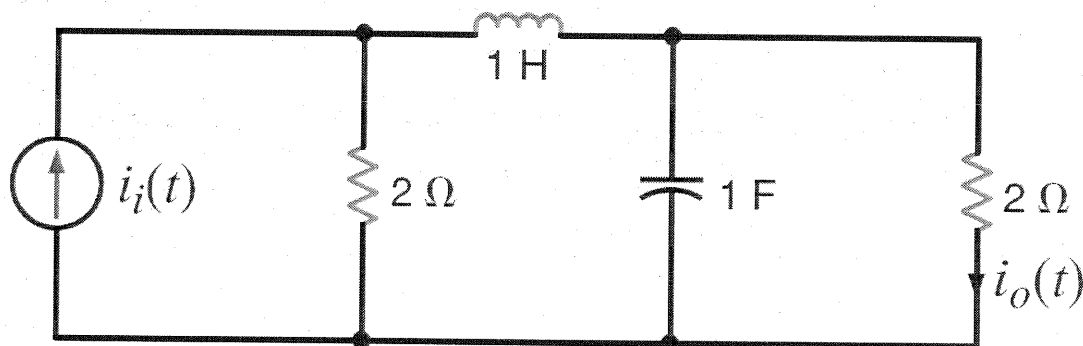
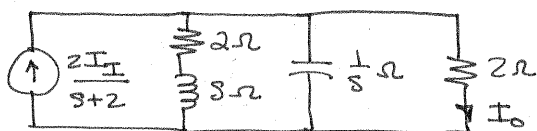
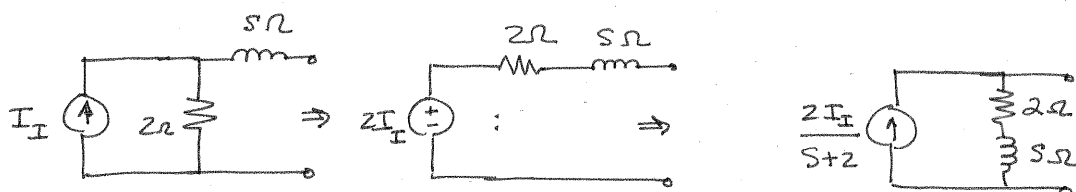


Figure P14.44

SOLUTION: Use source transformations



Current Division:
$$\mathbf{I}_o = \frac{2\mathbf{I}_I}{s+2} \left[\frac{1/2}{1/2 + s + \frac{1}{s+2}} \right] = \frac{\mathbf{I}_I}{(s+2)(s+1/2)+1}$$

$$\frac{\mathbf{I}_o}{\mathbf{I}_I} = \frac{1}{s^2 + 2.5s + 2}$$