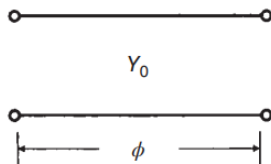
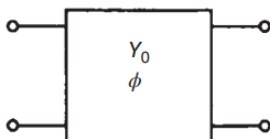


(a)



$$A_{\text{rem}}(s) = A(s)\cos\phi - jC(s)\sin\phi/Y_0$$

$$B_{\text{rem}}(s) = B(s)\cos\phi - jD(s)\sin\phi/Y_0$$

$$C_{\text{rem}}(s) = C(s)\cos\phi - jA(s)Y_0\sin\phi$$

$$D_{\text{rem}}(s) = D(s)\cos\phi - jB(s)Y_0\sin\phi$$

$$P_{\text{rem}}(s) = P(s)$$

When $\phi = \pi/2$ and $Y_0 = 1$ (a unit inverter), this simplifies to

$$A_{\text{rem}}(s) = -jC(s)$$

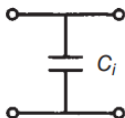
$$B_{\text{rem}}(s) = -jD(s)$$

$$C_{\text{rem}}(s) = -jA(s)$$

$$D_{\text{rem}}(s) = -jB(s)$$

$$P_{\text{rem}}(s) = P(s)$$

(b)



$$C_i = \left. \frac{D(s)}{sB(s)} \right|_{s=j\infty} = \left. \frac{C(s)}{sA(s)} \right|_{s=j\infty}$$

$$A_{\text{rem}}(s) = A(s)$$

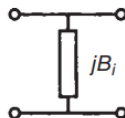
$$B_{\text{rem}}(s) = B(s)$$

$$C_{\text{rem}}(s) = C(s) - sC_iA(s)$$

$$D_{\text{rem}}(s) = D(s) - sC_iB(s)$$

$$P_{\text{rem}}(s) = P(s)$$

(c)



$$B_i = \left. \frac{D(s)}{B(s)} \right|_{s=j\infty} \text{ or } \left. \frac{C(s)}{A(s)} \right|_{s=j\infty}$$

$$A_{\text{rem}}(s) = A(s)$$

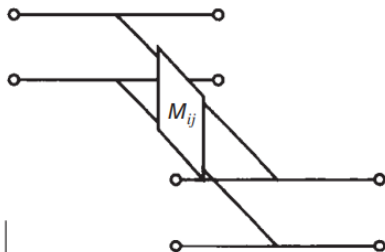
$$B_{\text{rem}}(s) = B(s)$$

$$C_{\text{rem}}(s) = C(s) - B_iA(s)$$

$$D_{\text{rem}}(s) = D(s) - B_iB(s)$$

$$P_{\text{rem}}(s) = P(s)$$

(d)



$$M_{ij} = - \left. \frac{P(s)}{B(s)} \right|_{s=j\infty}$$

$$A_{\text{rem}}(s) = A(s)$$

$$B_{\text{rem}}(s) = B(s)$$

$$P_{\text{rem}}(s)/\epsilon = P(s)/\epsilon + M_{ij}B(s)$$

$$C_{\text{rem}}(s) = C(s) + 2M_{ij}P(s)/\epsilon + M_{ij}^2B(s)$$

$$D_{\text{rem}}(s) = D(s)$$