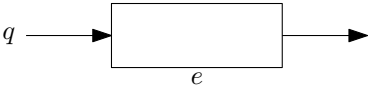
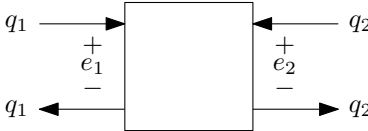
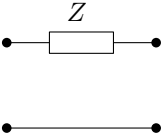
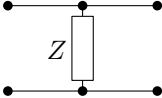
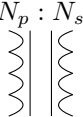
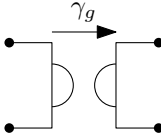
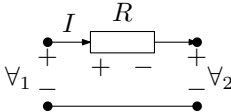
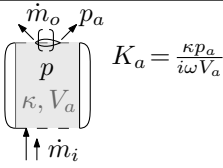
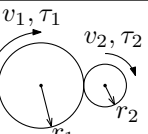
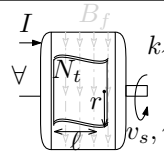
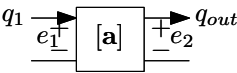
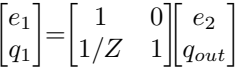
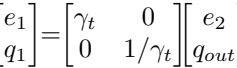
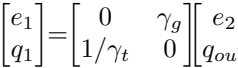
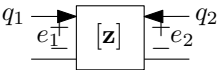
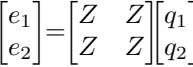
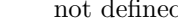
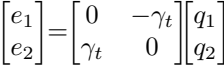


	One-port element		Two-port element	
				
	Series impedance	Shunt impedance	Transformer	Gyrator
Network diagram symbols				
Variable relationships	$e_1 = Zq + e_2$ $q = q$	$e = e$ $q_1 = \frac{1}{Z}e - q_2$	$e_1 \longleftrightarrow e_2 \quad e_1 = \gamma_t e_2$ $q_1 \longleftrightarrow q_2 \quad q_1 = \frac{-1}{\gamma_t} q_2$	$e_1 \times e_2 \quad e_2 = \gamma_g q_1$ $q_1 \times q_2 \quad e_1 = -\gamma_g q_2$
Examples	 $\mathbb{V}_1 = RI + \mathbb{V}_2$	 $K_a = \frac{\kappa p_a}{i\omega V_a}$ $\dot{m}_i = \frac{1}{K_a}p + \dot{m}_o$	 $N = \frac{r_1}{r_2}$ $\tau_1 = N\tau_2$ $v_1 = -\frac{1}{N}v_2$	 $k_\tau = 2N_t B_f \ell r$ $\tau = -k_\tau I$ $\mathbb{V} = k_\tau v_s$
<i>ABCD</i> form ($q_{out} = -q_2$)	 $\begin{bmatrix} e_1 \\ q_1 \end{bmatrix} = \begin{bmatrix} 1 & Z \\ 0 & 1 \end{bmatrix} \begin{bmatrix} e_2 \\ q_{out} \end{bmatrix}$	 $\begin{bmatrix} e_1 \\ q_1 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 1/Z & 1 \end{bmatrix} \begin{bmatrix} e_2 \\ q_{out} \end{bmatrix}$	 $\begin{bmatrix} e_1 \\ q_1 \end{bmatrix} = \begin{bmatrix} \gamma_t & 0 \\ 0 & 1/\gamma_t \end{bmatrix} \begin{bmatrix} e_2 \\ q_{out} \end{bmatrix}$	 $\begin{bmatrix} e_1 \\ q_1 \end{bmatrix} = \begin{bmatrix} 0 & \gamma_g \\ 1/\gamma_t & 0 \end{bmatrix} \begin{bmatrix} e_2 \\ q_{out} \end{bmatrix}$
Impedance form		 $\begin{bmatrix} e_1 \\ e_2 \end{bmatrix} = \begin{bmatrix} Z & Z \\ Z & Z \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$		 $\begin{bmatrix} e_1 \\ e_2 \end{bmatrix} = \begin{bmatrix} 0 & -\gamma_t \\ \gamma_t & 0 \end{bmatrix} \begin{bmatrix} q_1 \\ q_2 \end{bmatrix}$