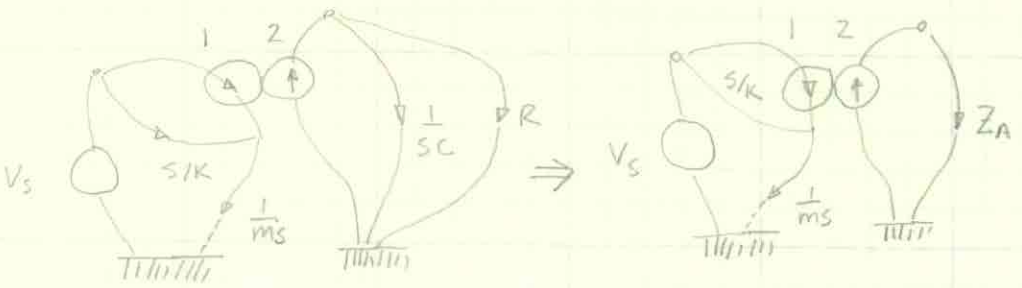


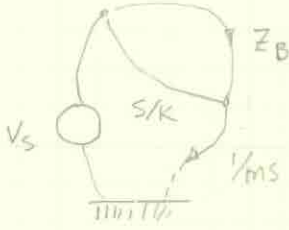
Equivalent

$$\frac{1}{Z_A} = \frac{1}{1/SC} + \frac{1}{R} = SC + \frac{1}{R} = \frac{SRC+1}{R} \quad ; \quad Z_A = \frac{R}{SRC+1}$$

FOR the gyrator

$$\begin{bmatrix} v_1 \\ f_1 \end{bmatrix} = \begin{bmatrix} 0 & 1/p \\ p & 0 \end{bmatrix} \begin{bmatrix} v_2 \\ f_2 \end{bmatrix} \quad ; \quad GY \equiv \frac{1}{p}$$

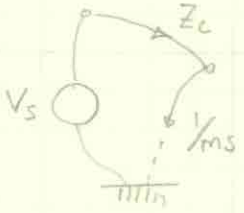
$\Rightarrow$



where $Z_B = (GY)^2 / Z_A(s)$

$$= \frac{1}{p^2} \cdot \frac{SRC+1}{R}$$

$\Rightarrow$



$$\frac{1}{Z_C} = \frac{1}{S/K} + \frac{1}{Z_B}$$

$$= \frac{K}{S} + \frac{p^2 R}{1+SRC} = \frac{K(1+SRC)+p^2RS}{S(1+SRC)}$$

OR

$$Z_C = \frac{S(1+SRC)}{K + R(KC+p^2)S}$$

Driving point Impedance

$$Z(s) = \frac{1}{ms} + Z_C(s) = \frac{1}{ms} + \frac{S(1+SRC)}{K + R(KC+p^2)S}$$