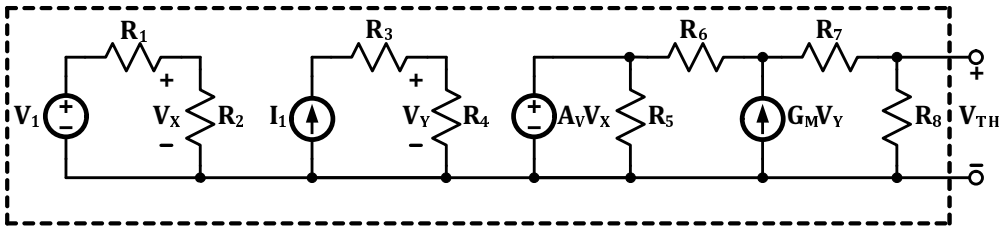
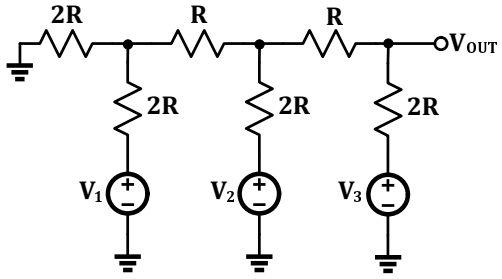
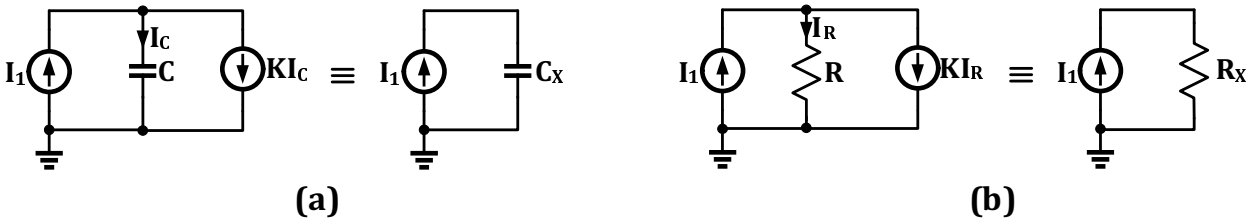
**1.** Construct Thevenin equivalent model of the circuit shown below and determine expressions for Thevenin voltage, $V_{TH}$ and Thevenin resistance, $R_{TH}$.




**2.** Calculate output voltage, $V_{OUT}$, in terms of input voltages, $V_1$, $V_2$, and $V_3$.




**3.** Find the value of capacitor $C_X$ in terms of constant K and C if the two circuits shown in part (a) are equivalent. Similarly, determine the value of resistor $R_X$ in terms of K and R for part (b).




**4.** Determine voltage gain, $A_v = \frac{v_2}{v_1}$, for the two circuits shown below.

