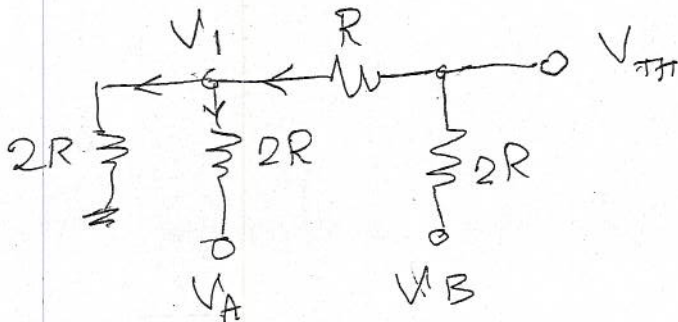
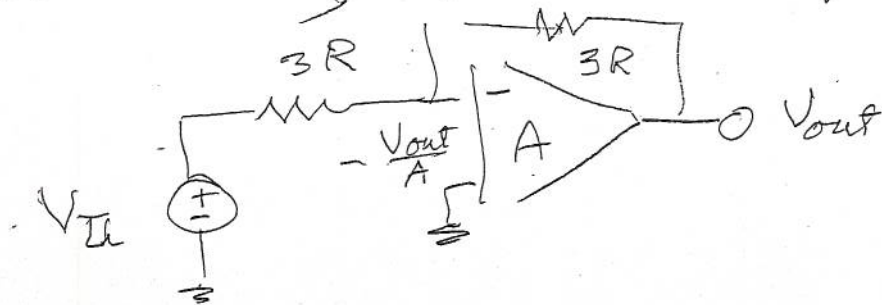


Thévenin eq. of R-2R input branch



$$\frac{V_1}{2R} + \frac{V_1 - V_A}{2R} = \frac{V_B - V_1}{3R}$$

$$V_1 \left( \frac{G}{2} + \frac{G}{2} + \frac{G}{3} \right) = V_A \frac{G}{2} + V_B \frac{G}{3}$$

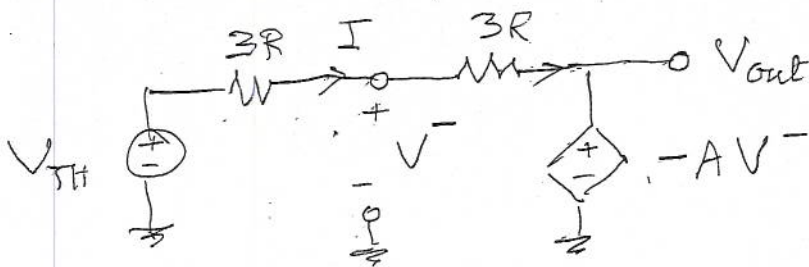
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$$V_1 = \frac{3}{8} V_A + \frac{1}{4} V_B$$

$$\begin{cases} V_A = b_1 V_{ref} \\ V_B = b_2 V_{ref} \end{cases}$$

$$V_{TH} = V_B - \frac{2}{3} (V_B - V_1) = V_A/4 + V_B/2$$

$$= b_1/2 + b_2$$



$$I = \frac{V_{TH} - V_{out}}{6R} = \frac{1}{3R} \left( -\frac{1}{A} - 1 \right) V_{out} = -\frac{\mu+1}{3R} V_{out}$$

$$V_{TH} = (1 - 2(\mu+1)) V_{out} = -(1 + 2\mu) V_{out}$$

$$V_{out} = -\frac{V_{TH}}{1 + 2\mu} = -(1 + 2/A)^{-1} V_{ref} (b_1/4 + b_2/2)$$

$$\approx -0.998 (b_1/2 + b_2)$$