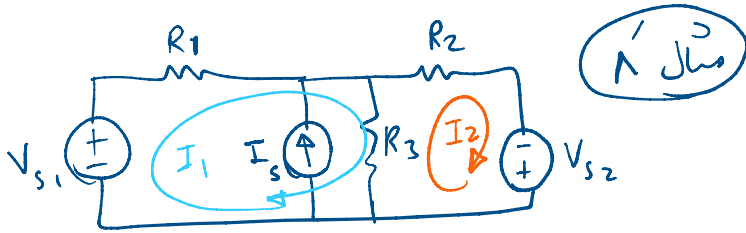


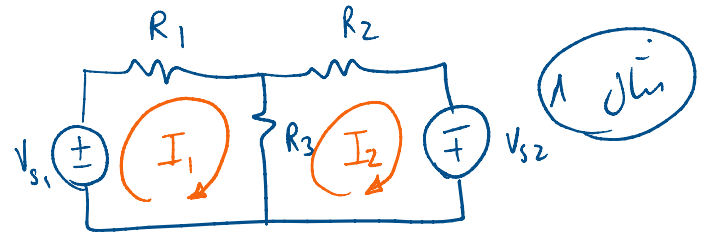
روش تحلیل مش



$$KVL1: -V_{s1} + R_1 I_1 + R_3 (I_1 + I_s - I_2) = 0$$

$$KVL2: -V_{s2} + R_3 (I_2 - I_1 - I_s) + R_2 I_2 = 0$$

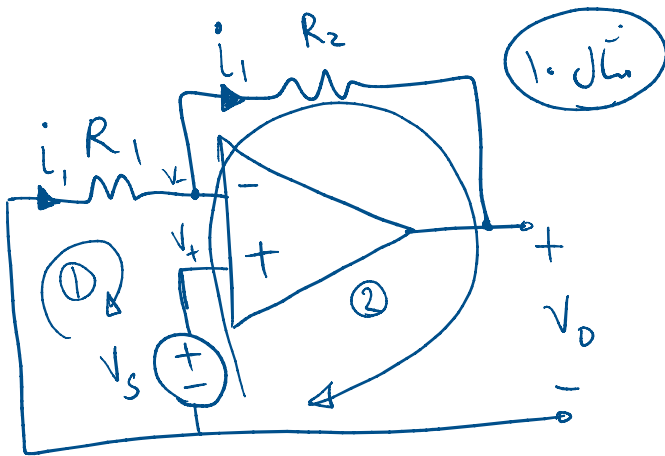
$$\begin{cases} (R_1 + R_3) I_1 - R_3 I_2 = V_{s1} - R_3 I_s \\ -R_3 I_1 + (R_2 + R_3) I_2 = V_{s2} + R_3 I_s \end{cases}$$



$$KVL1: -V_{s1} + R_1 I_1 + R_3 (I_1 - I_2) = 0$$

$$KVL2: -V_{s2} + R_3 (I_2 - I_1) + R_2 I_2 = 0$$

$$\begin{cases} (R_1 + R_3) I_1 - R_3 I_2 = V_{s1} \\ -R_3 I_1 + (R_2 + R_3) I_2 = V_{s2} \end{cases} \Rightarrow \begin{cases} I_1 = ? \\ I_2 = ? \end{cases}$$

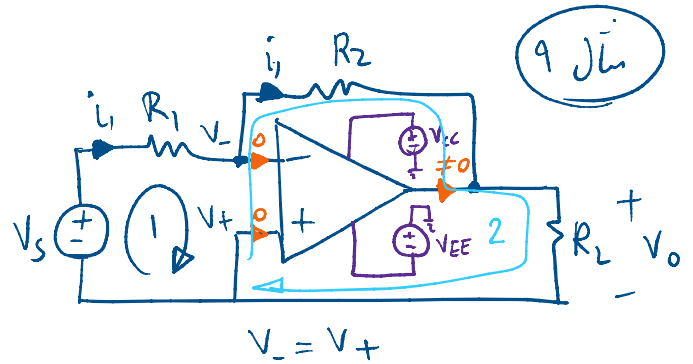


$$KVL1: R_1 i_1 + (V_- - V_+) + V_s = 0 \quad *$$

$$KVL2: -V_s + (V_+ - V_-) + R_2 i_1 + V_o = 0 \quad **$$

$$* \Rightarrow i_1 = -\frac{V_s}{R_1}$$

$$** \Rightarrow V_o = V_s - R_2 i_1 \Rightarrow V_o = \left(1 + \frac{R_2}{R_1}\right) V_s$$



$$KVL1: -V_s + R_1 i_1 + (V_- - V_+) = 0 \quad *$$

$$KVL2: (V_+ - V_-) + R_2 i_1 + V_o = 0 \quad **$$

$$* \Rightarrow i_1 = \frac{V_s}{R_1}$$

$$** \Rightarrow V_o = -R_2 i_1 \Rightarrow V_o = -\frac{R_2}{R_1} V_s$$