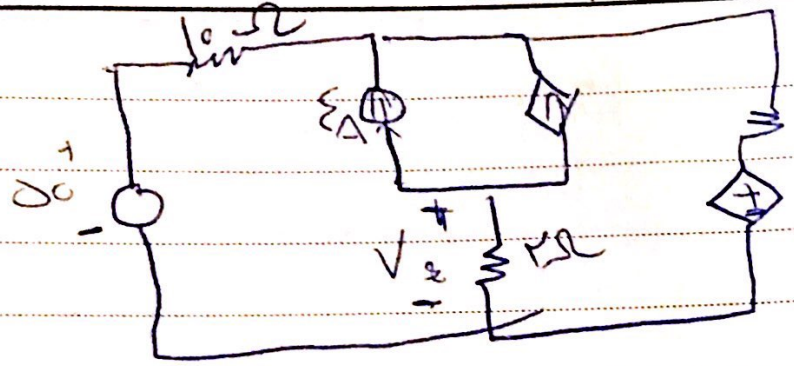
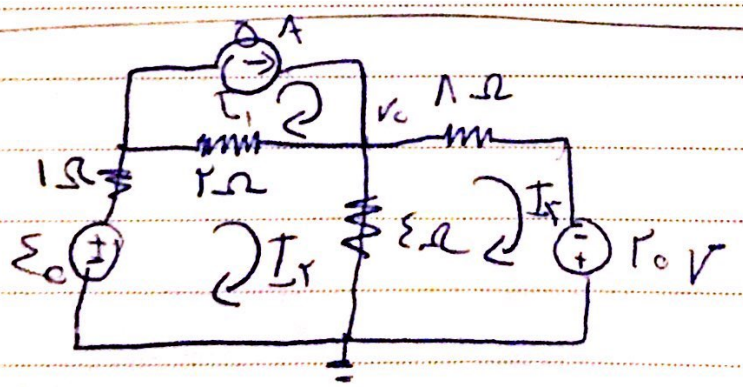
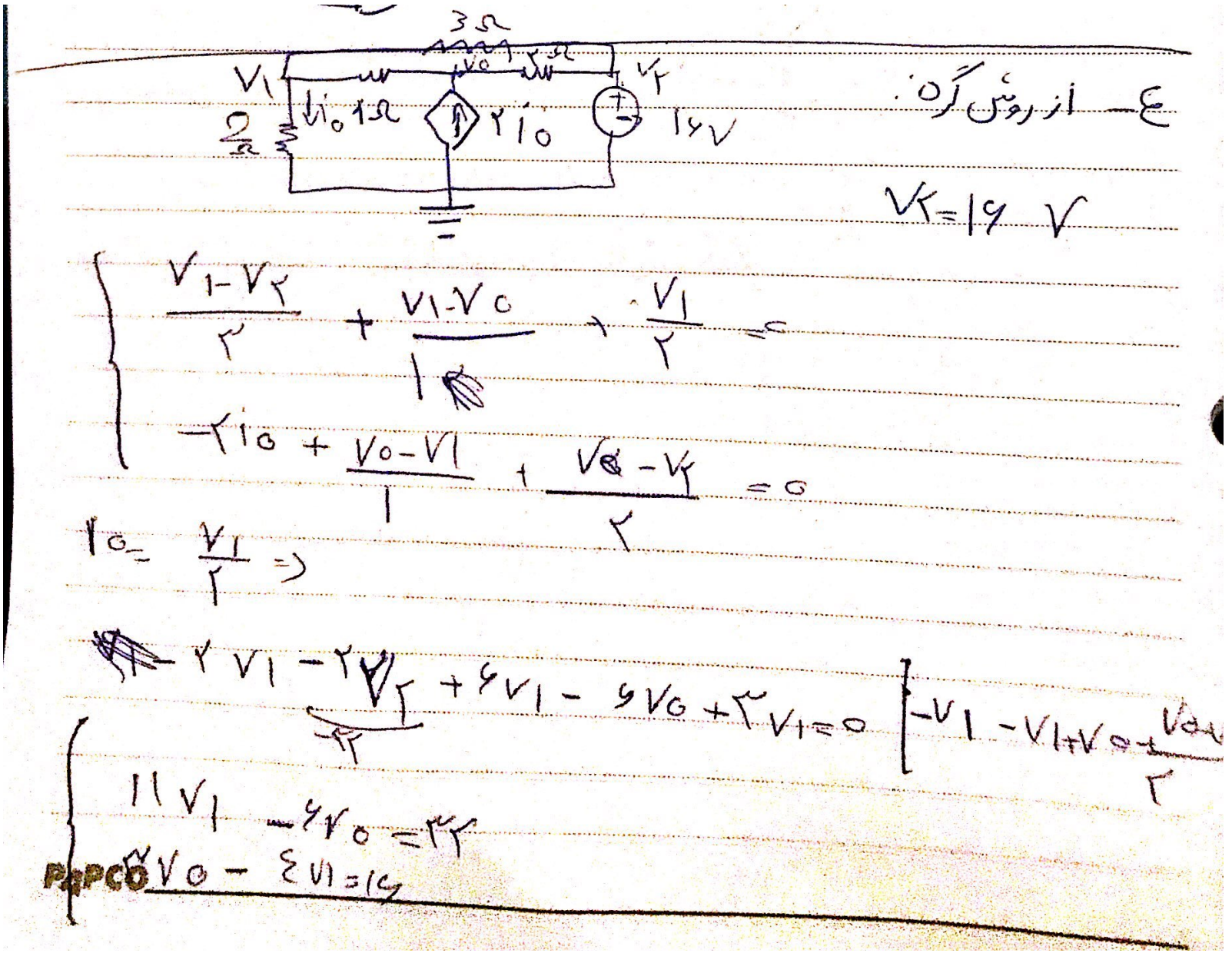






۴ـ از روش گره:

$V_2 = 16\ V$

$$\frac{V_1 - V_2}{2} + \frac{V_1 - V_0}{1} + \frac{V_1}{2} = 0$$

$$-2i_0 + \frac{V_0 - V_1}{1} + \frac{V_0 - V_2}{2} = 0$$

$$i_0 = \frac{V_1}{2} \Rightarrow$$

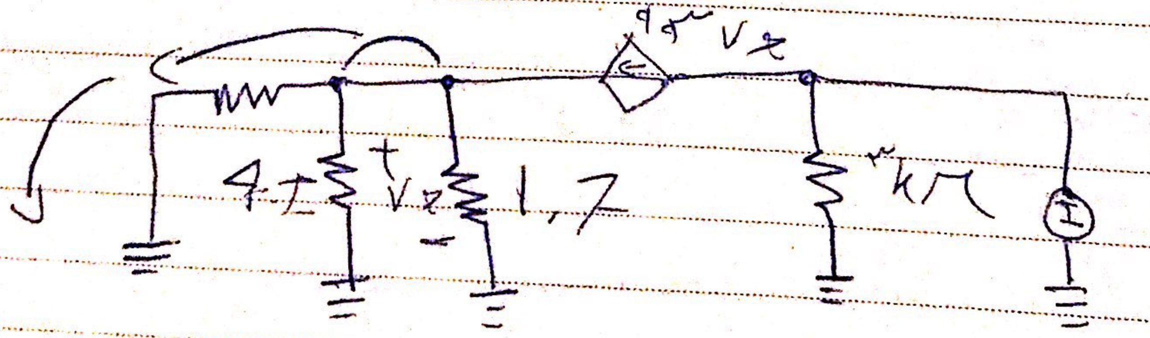
$$-2V_1 - 2V_2 + 6V_1 - 6V_0 + 3V_1 = 0 \quad \left| -V_1 - V_1 + V_0 - \frac{V_0 - V_2}{2} \right.$$

$$\begin{cases} 11V_1 - 6V_0 = 32 \\ 4V_0 - 8V_1 = 16 \end{cases}$$

Date

$V_0 = ۳۳/۷۸$ $V_1 = ۲۶/۳۳$

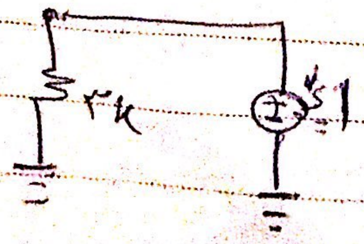
$i_0 = \frac{V_1}{۲} \Rightarrow ۱۰/۹۹ \cong ۱۱A$



$V_S = 1\ V$

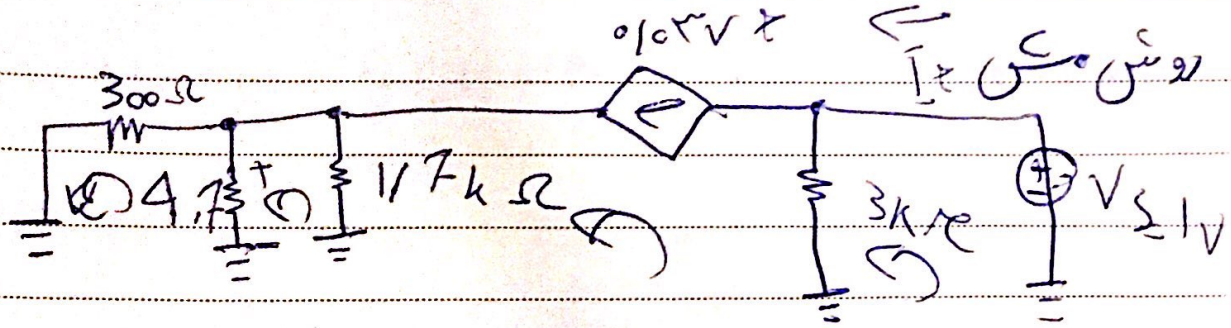
روش گره

$-0/03\, V_x + \frac{V_x}{0/3} + \frac{V_x}{9/7} + \frac{V_x}{1/7} \Rightarrow V_x = 0$



مدار جدید

$I_x = \frac{1}{3K} = 0/33\, mA$



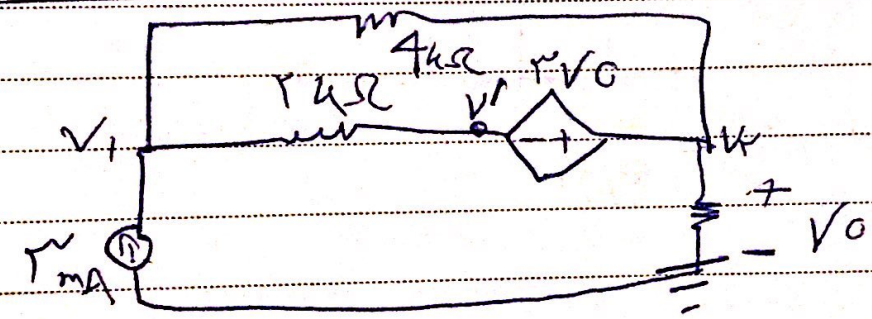
KVL 1: $-1 + 3k(I_x - 0.25V_x)$

KVL 2: $V_x + V_x = 0 \Rightarrow V_x = 0$

$\Rightarrow 1 = 3kI$

$I = 0.33\,mA$

ب-



$V_2 - V' = 3V_0 \Rightarrow V' = V_2 - 3V_0$

V_1 node: $-3 + \frac{V_1 - (V_2 - 3V_0)}{2} + \frac{V_1 - V_2}{4} = 0$

V_2 node: $\frac{V_2 - V_1}{4} + \frac{V_2}{1} + \frac{V_2 - (3V_0 + V_1)}{2} = 0$

$$\begin{cases} 3V_2 - 3V_1 = 12 \\ -3V_1 - V_2 = 0 \end{cases} \Rightarrow V_2 = -3V_1$$

$V_1 = -1 \quad V_2 = 3$