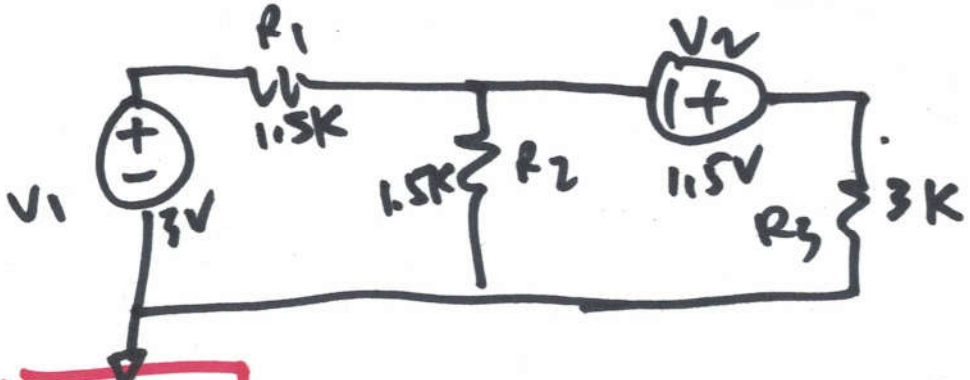
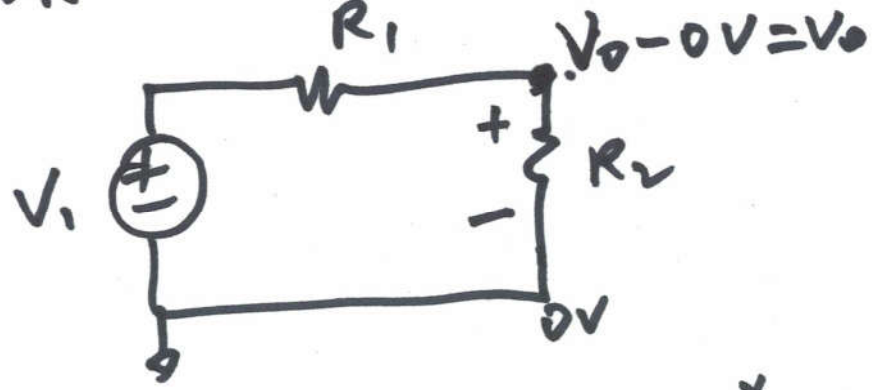
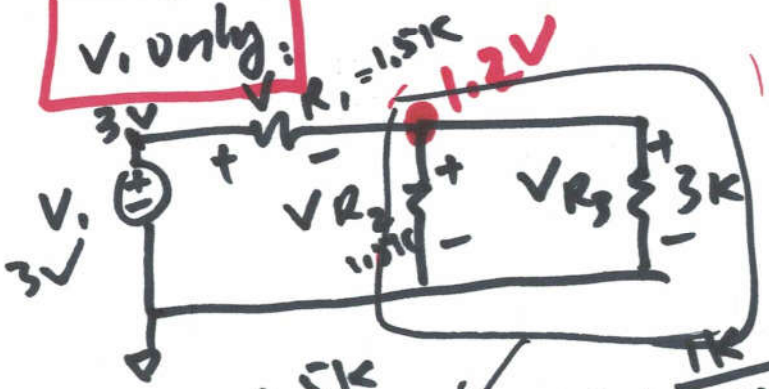
Monday, 10 PM

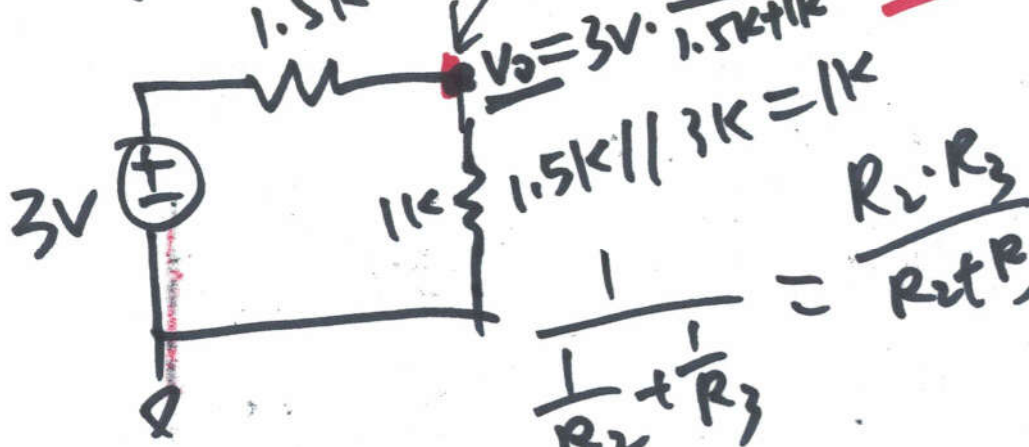




V1 only:



$$\frac{R_2}{R_1+R_2} = \frac{V_{R_2}}{V_0(R_1+R_2)} = \frac{V_0}{V_1}$$



$$\frac{1}{\frac{1}{R_2}+\frac{1}{R_3}} = \frac{R_2 \cdot R_3}{R_2+R_3} = \frac{4.5K^2}{4.5K} = 1K$$

$$V_0 = \frac{R_2}{R_1+R_2} \cdot V_1$$

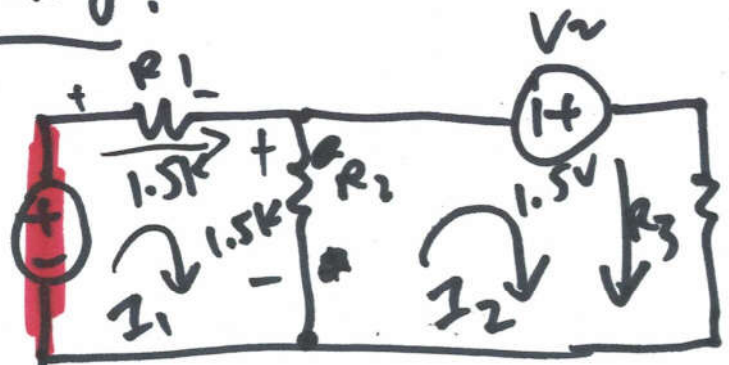
(J)

$V_{R_1} = 3V - 1.2V = 1.8V$ $I_{R_1} = \frac{V_{R1}}{R_1} =$

$V_{R_2} = 1.2V$ $I_{R2} = \frac{V_{R2}}{R_2} =$

$V_{R_3} = 1.2V$ $I_{R3} = \frac{V_{R3}}{R_3} =$

V_2 only:



$V_{R3} = I_2 \cdot 3K = 0.4mA \cdot 3K = 1.2V$

$V_{R1} = 1.5K \cdot 0.2mA = 0.3V$

$V_{R2} = (0.2mA - 0.4mA) \cdot 1.5K = -0.3V$

$$\begin{cases} I_1 \cdot R_1 + (I_1 - I_2) R_2 = 0 \quad \text{(KVL)} \\ (I_2 - I_1) \cdot R_2 - 1.5 + I_2 \cdot R_3 = 0 \end{cases}$$

$$\begin{cases} I_1 \cdot 3K - I_2 \cdot 1.5K = 0 \Rightarrow I_1 = 0.2mA \\ I_2 \cdot 4.5K - I_1 \cdot 1.5K = 1.5 \Rightarrow 9K \cdot I_2 - 3K I_1 = 3 \end{cases}$$

$7.5K \cdot I_2 = 3V$

$I_2 = \frac{3V}{7.5K} = 0.4mA$

$V_{R1} = 1.8V + 0.3V = 2.1V$

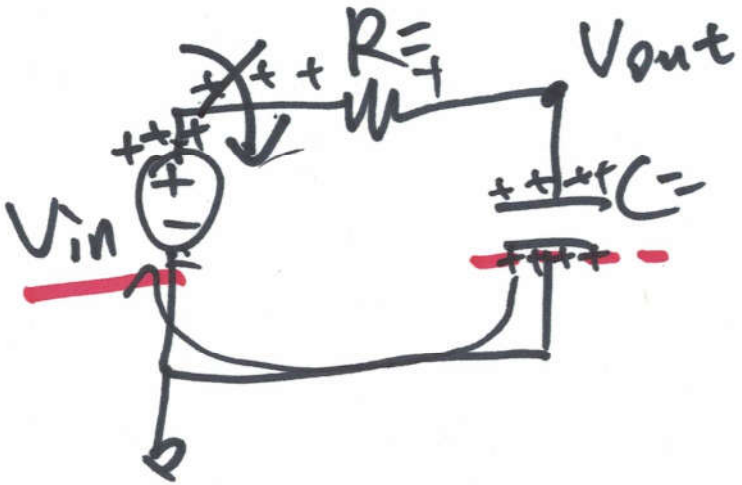
$V_{R2} = 1.2V - 0.3V = 0.8V$

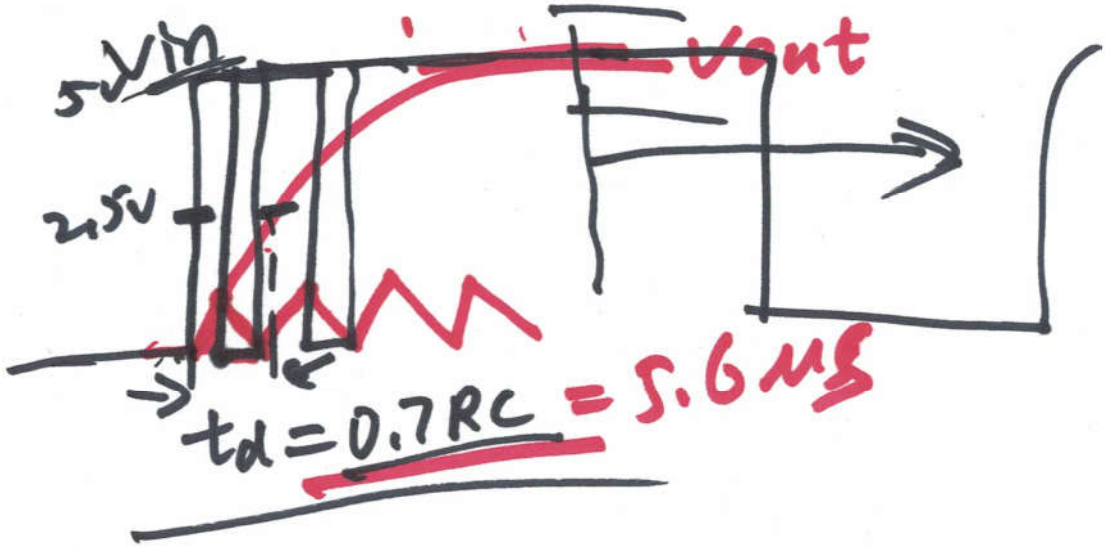
$V_{R3} = 1.2V + 1.2V = 2.4V$

$I_{R1} = \frac{V_{R1}}{R_1} = \ldots$

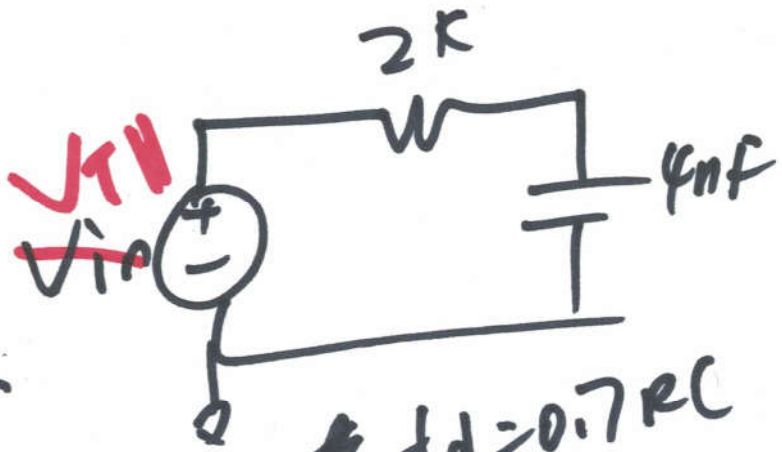
$I_{R2} = \frac{V_{R2}}{R_2} = \ldots$

$I_{R3} = \frac{V_{R3}}{R_3} = \ldots$





$$V_R = \frac{7}{\uparrow} \cdot \underline{R} = 0$$

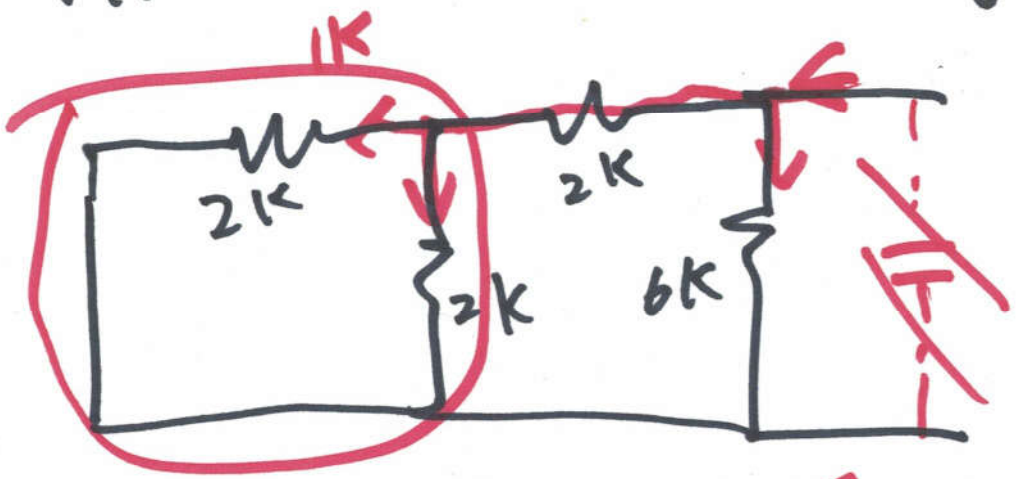


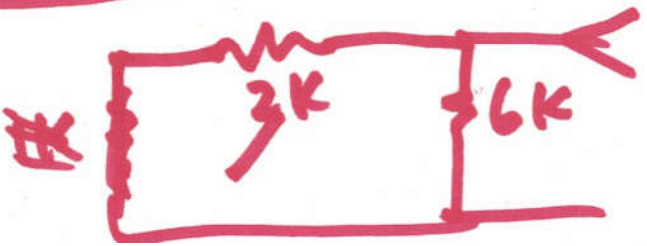
$\star\ td = 0.7RC$

$= 0.7 \cdot \underline{2K} \cdot \underline{4n}$

$= 5.6\,\mu s$

VTH RTH





RTH = 2K