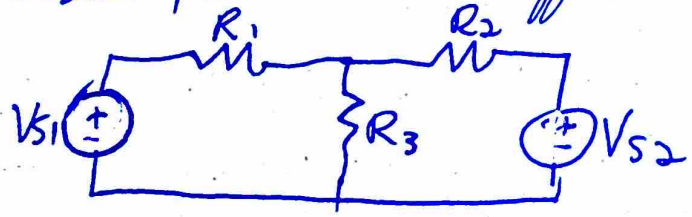
Note for superposition, you analyze the circuit with one source active at a time, and all other sources set equal to zero

☆ For a Voltage Source 0V is a short circuit

For a current source 0A is an open circuit

From lab, teams did different experiments

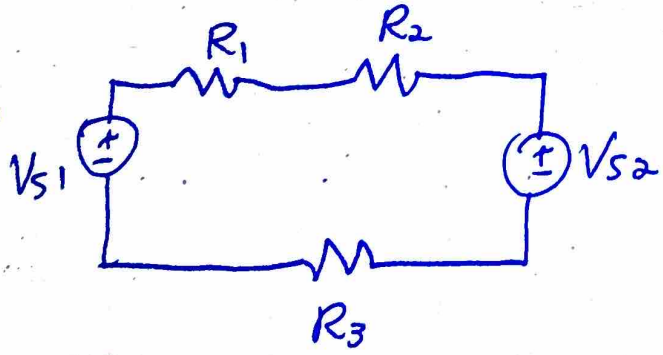
1)



a) finding V_{R3} → class example

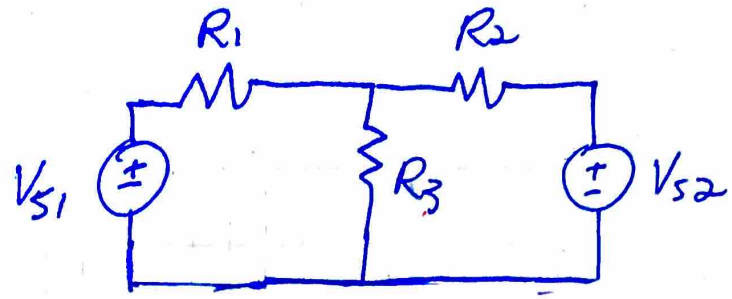
b) finding I_{R3}

2)



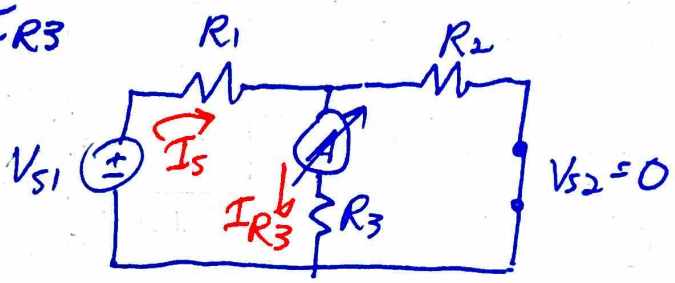
a) finding V_{R2}

I_{R3}



to find I_{R3}

step 1



$$R_{eq} = R_1 + R_2 \| R_3$$

$$I_S = \frac{V_{S1}}{R_1 + R_2 \| R_3}$$

THEN USE CURRENT DIVIDER

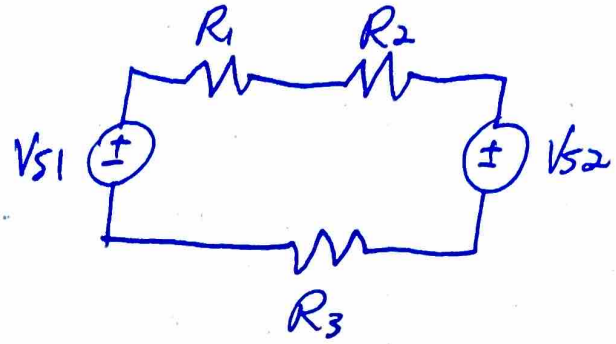
REMEMBER $I_{R3} \propto R_2$

$$I_{R3} = I_S \left(\frac{R_2}{R_2 + R_3} \right)$$

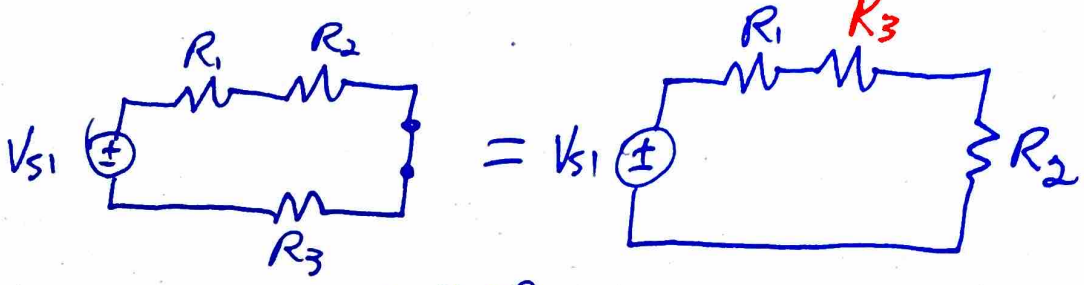
SO ~~$I_{R3} = I_S \left(\frac{R_3}{R_2 + R_3} \right)$~~

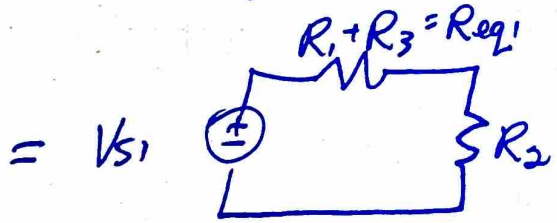
Repeat with V_{S2} on & $V_{S1} = 0$

Add results for total I_{R3}



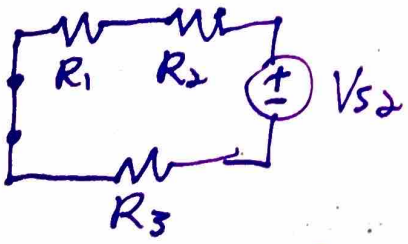
for V_{S1} on and $V_{S2} = 0V$





Then $V_{R2} = V_{S1}\left(\frac{R_2}{R_1+R_3+R_2}\right)$

Repeat with V_{S2} on and $V_{S1} = 0$



$$V_{R2} = V_{S2}\left(\frac{R_2}{R_1+R_2+R_3}\right)$$

And the total V_{R2} is the sum of the values found above