Voltage Divider
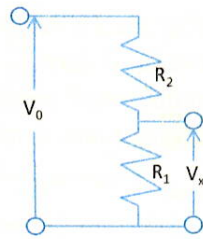

Problem: show that

$V_x = V_0 R_1/(R_1+R_2)$

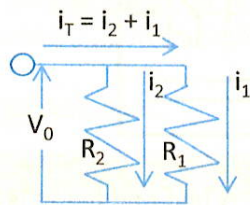YOUR SOLUTION HERE:

Total $I = \dfrac{V_0}{R_1 + R_2}$ by Ohm's.

I thru R_1 is $= I_{total}$

$V_x = I_1 \cdot R_1 = \dfrac{V_0}{R_1 + R_2} \cdot R_1$ □

Current Divider

$i_T = i_2 + i_1$

Problem: show that

$I_1 = i_T R_2/(R_1+R_2)$

YOUR SOLUTION HERE:

voltage across R_1 & R_2 $= V_0$.

$i_1 = \dfrac{V_0}{R_1}$ $i_2 = \dfrac{V_0}{R_2}$

total $R = \dfrac{R_1 R_2}{R_1 + R_2}$ $\Rightarrow$ $\dfrac{V_0 \cdot (R_1 + R_2)}{R_1 R_2} = i_T$

$\dfrac{R_1 R_2}{R_2} = \dfrac{i_T}{i_1}$

$i_1 = i_T \cdot \dfrac{R_2}{R_1 + R_2}$ □

Week 1 Prelab End

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