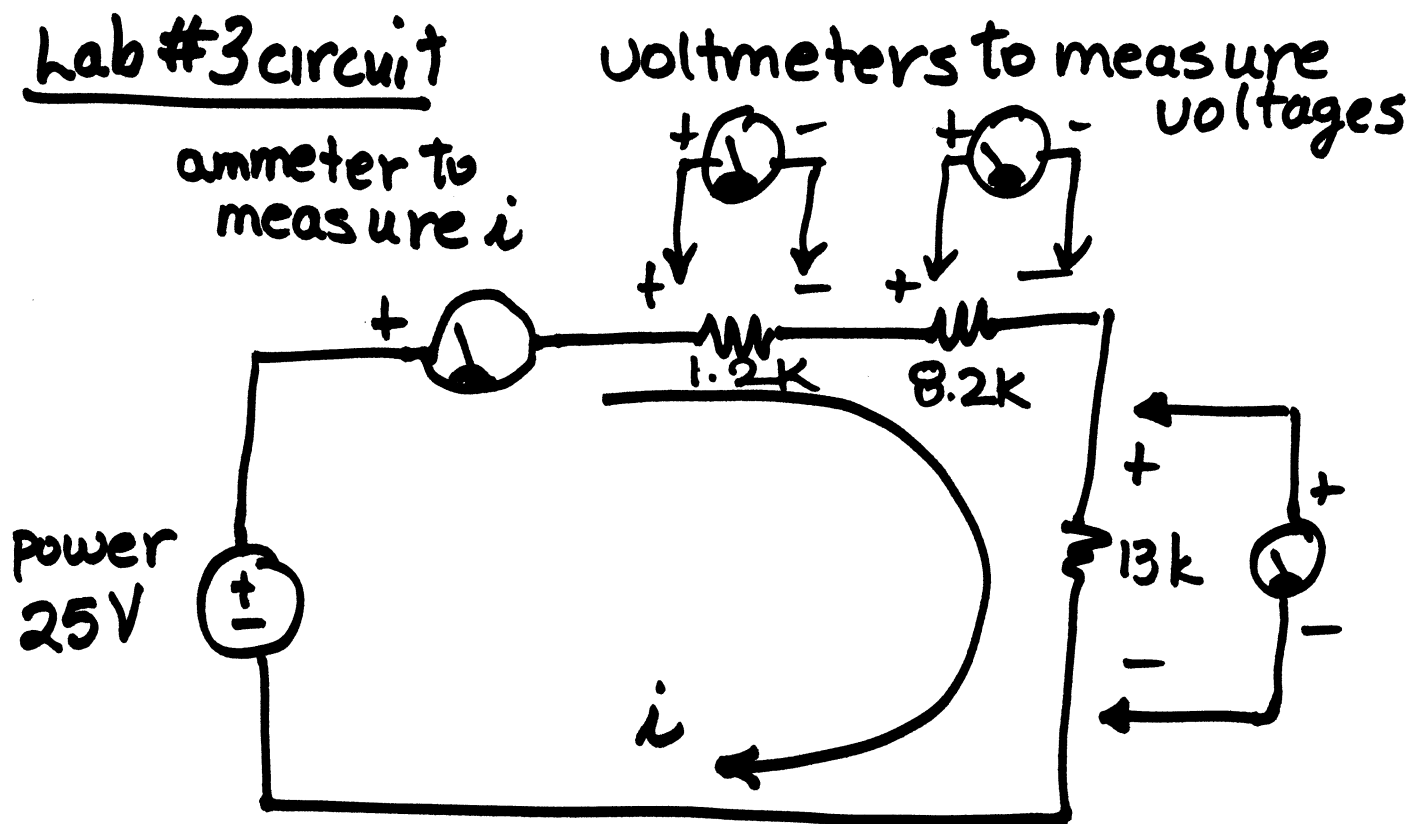


Lab #3 circuit



You can not measure these simultaneously with only one meter.

Measure one at a time

- turn power supply output OFF while you are disconnecting/connecting meter leads!

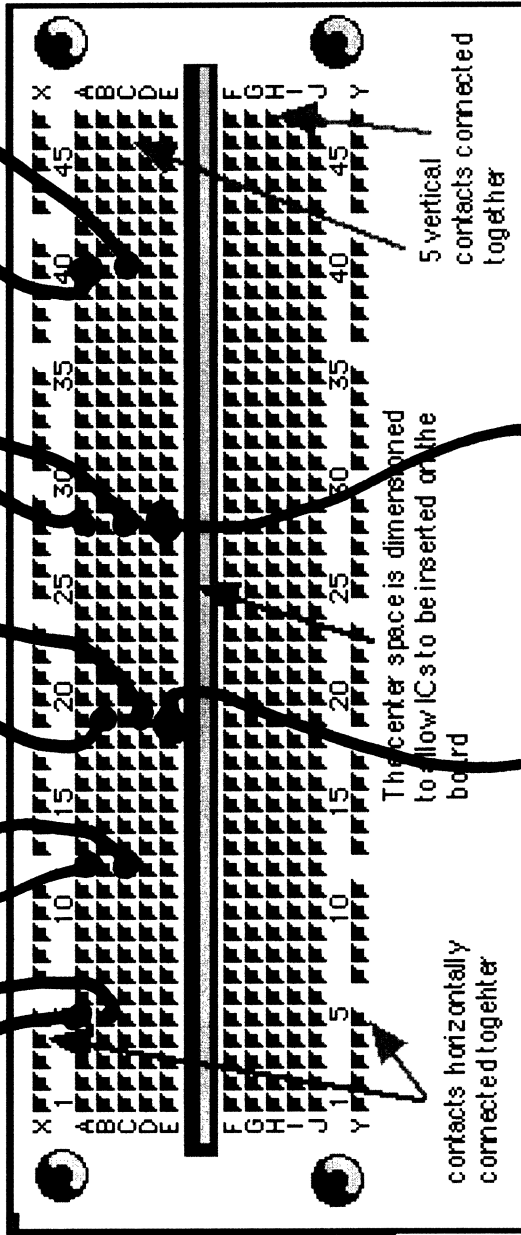
How to build the circuit

E9631A

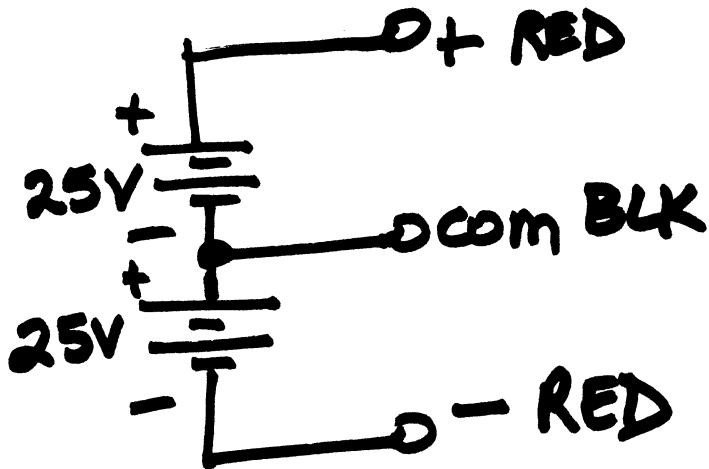
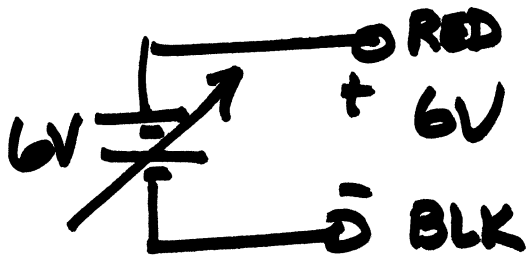
+ Ketting 2000

DCI

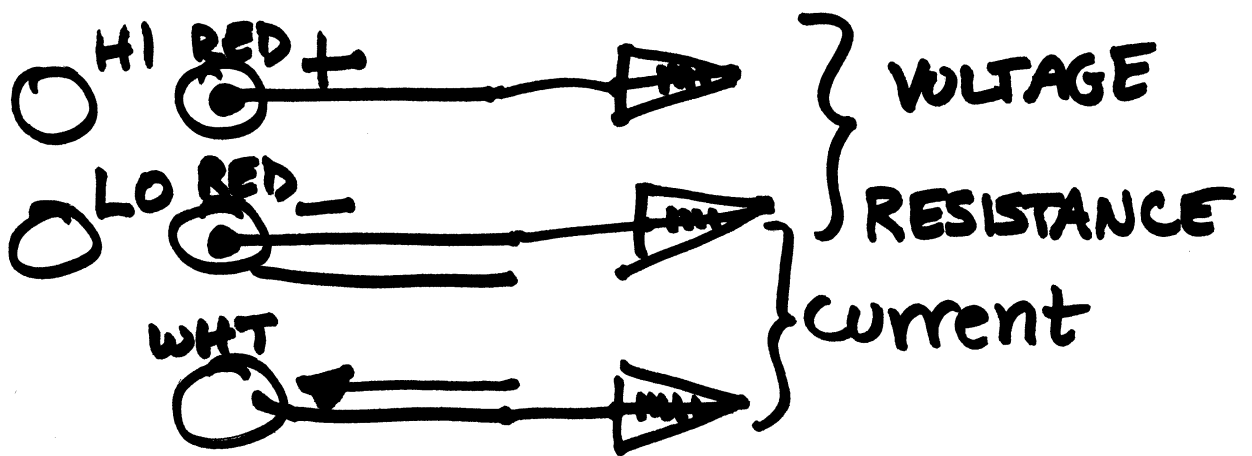
10



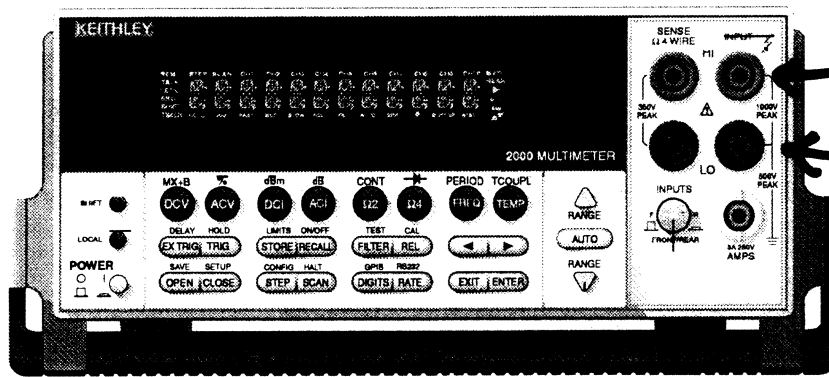
E3631A power supply



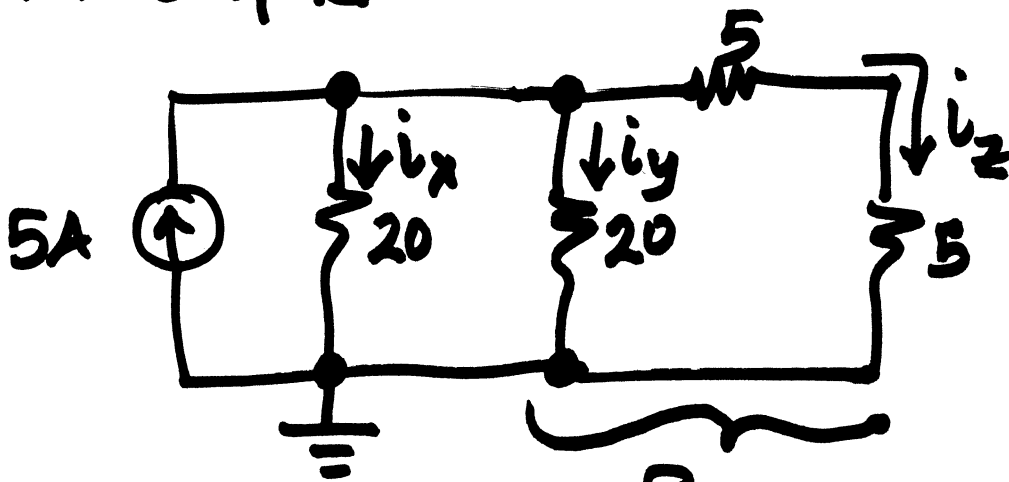
KEITHLEY 2000 DMM



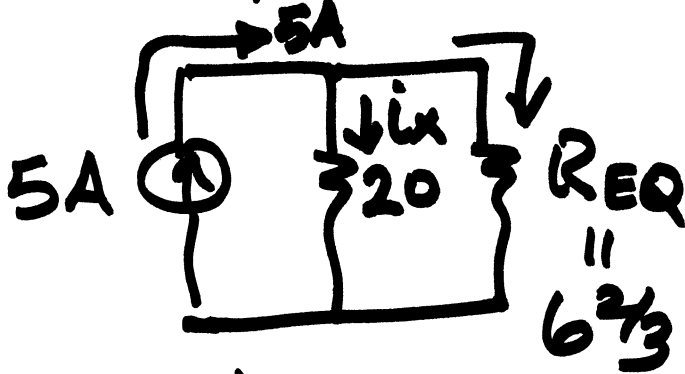
KEITHLEY 2000 DMM



Example 2-18



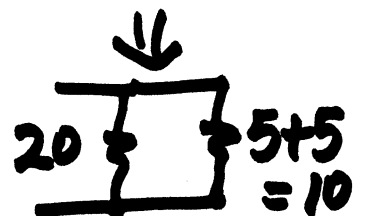
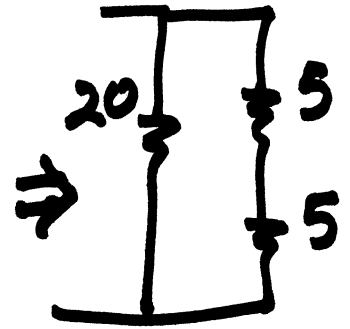
Find i_x



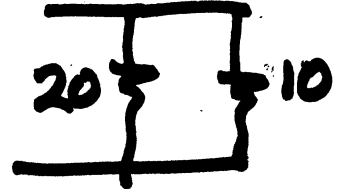
current divider

$$i_x = \frac{R_{EQ}}{R_{EQ} + 20} \cdot 5$$

$$i_x = \frac{5}{4} = 1.25A$$



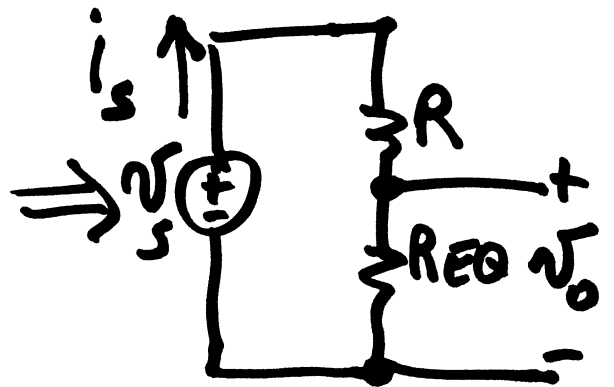
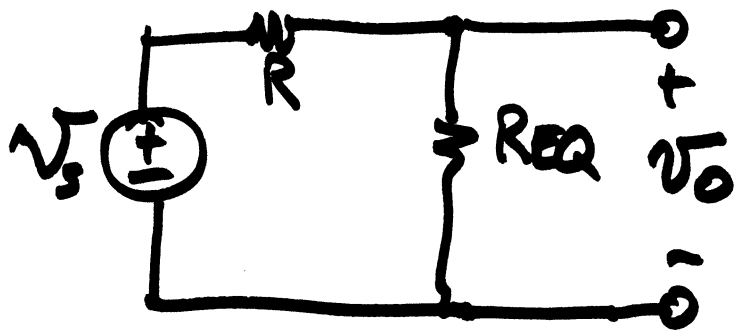
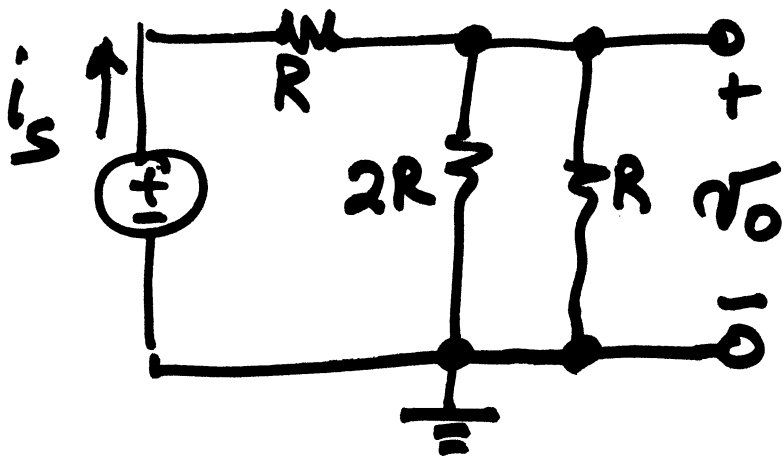
current divider



$$\frac{1}{R_{EQ}} = \frac{1}{20} + \frac{1}{10}$$

$$R_{EQ} = \frac{20 \cdot 10}{20 + 10} = \frac{200}{30}$$

Example 2-20



$$\frac{1}{R_{eq}} = \frac{1}{2R} + \frac{1}{R}$$

$$R_{eq} = \frac{2R \cdot R}{2R + R} = \frac{2}{3}R$$

voltage divider.

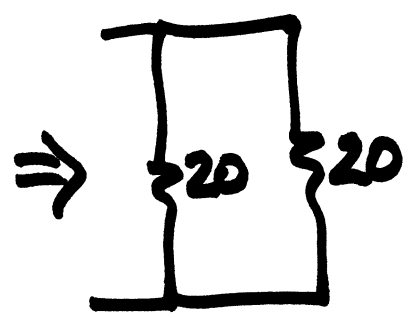
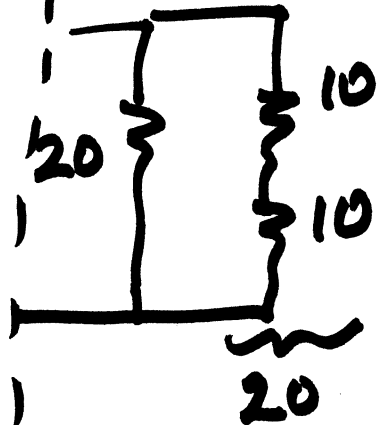
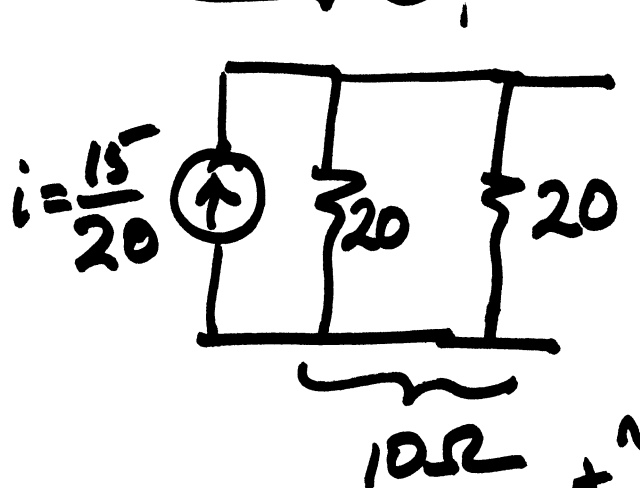
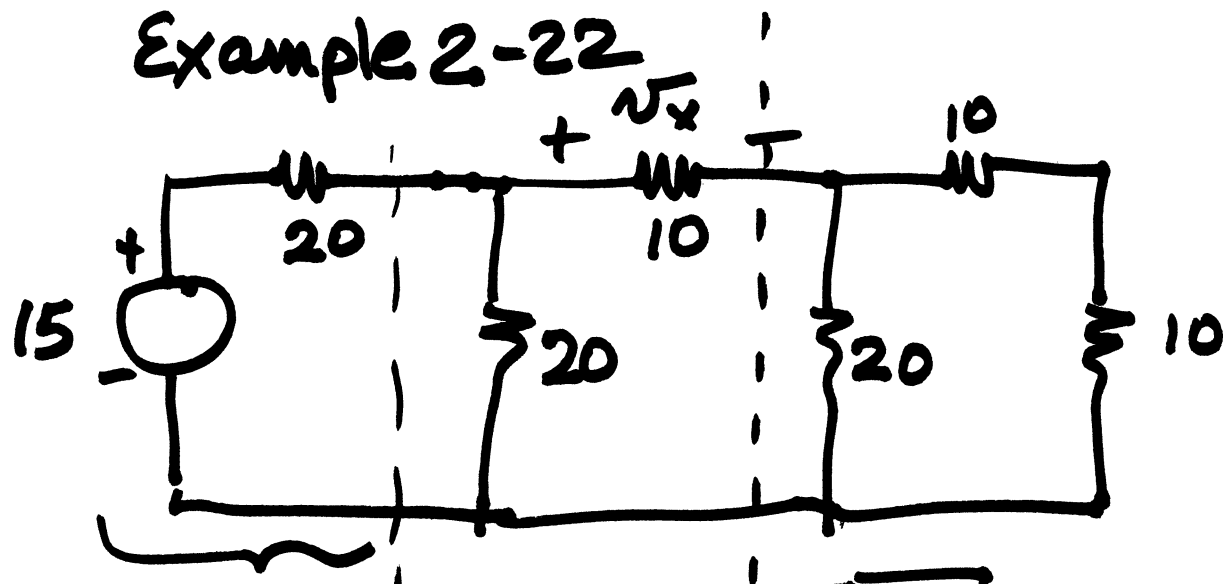
$$v_o = \frac{R_{eq}}{R + R_{eq}} v_s$$

$$= \frac{2}{5} v_s$$

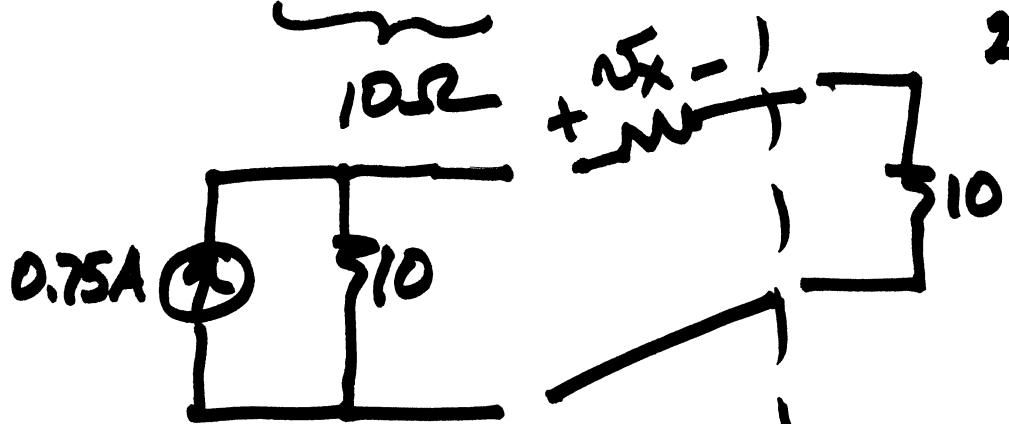


further simplify $i_s = \frac{v_s}{R'_{eq}}$ → Ohm's Law

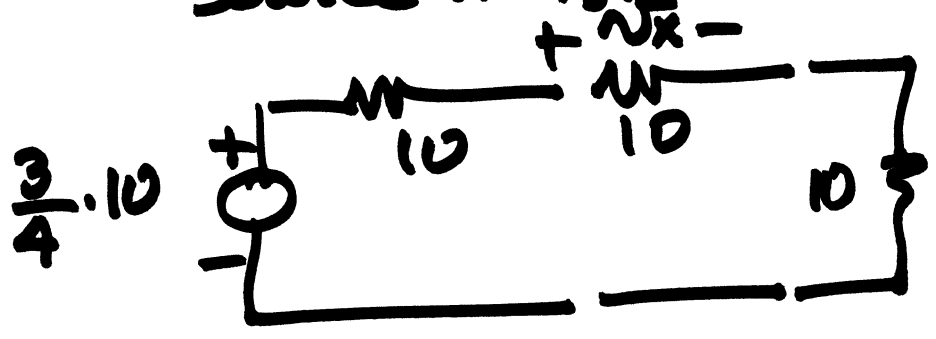
Example 2-22



$$R_{eq} = \frac{20 \cdot 20}{20 + 20} = 10$$



source transform



find V_x by voltage divider.

$$V_x = \frac{10}{10 + 10 + 10} \cdot \frac{3}{4} \cdot 10$$