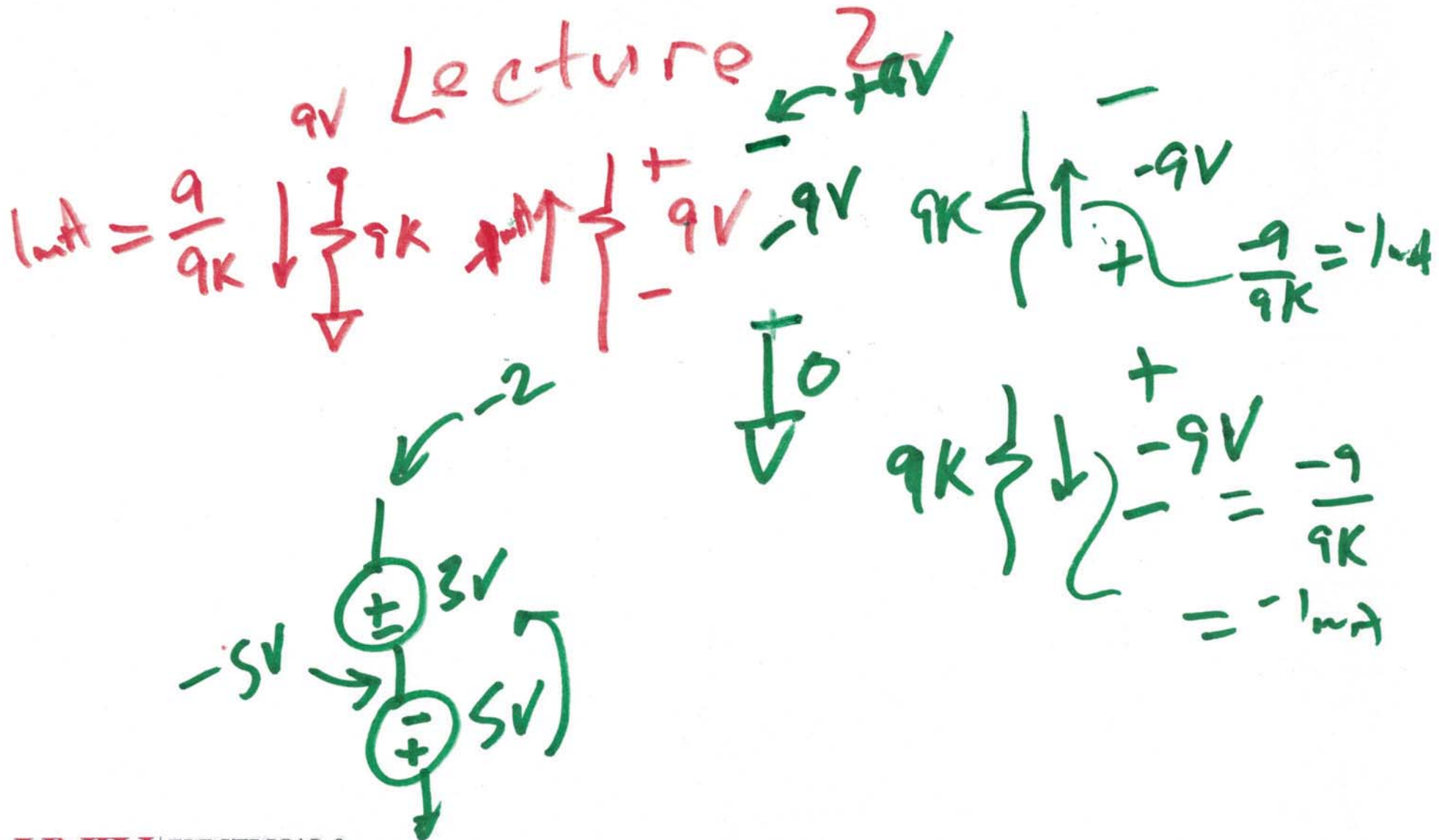
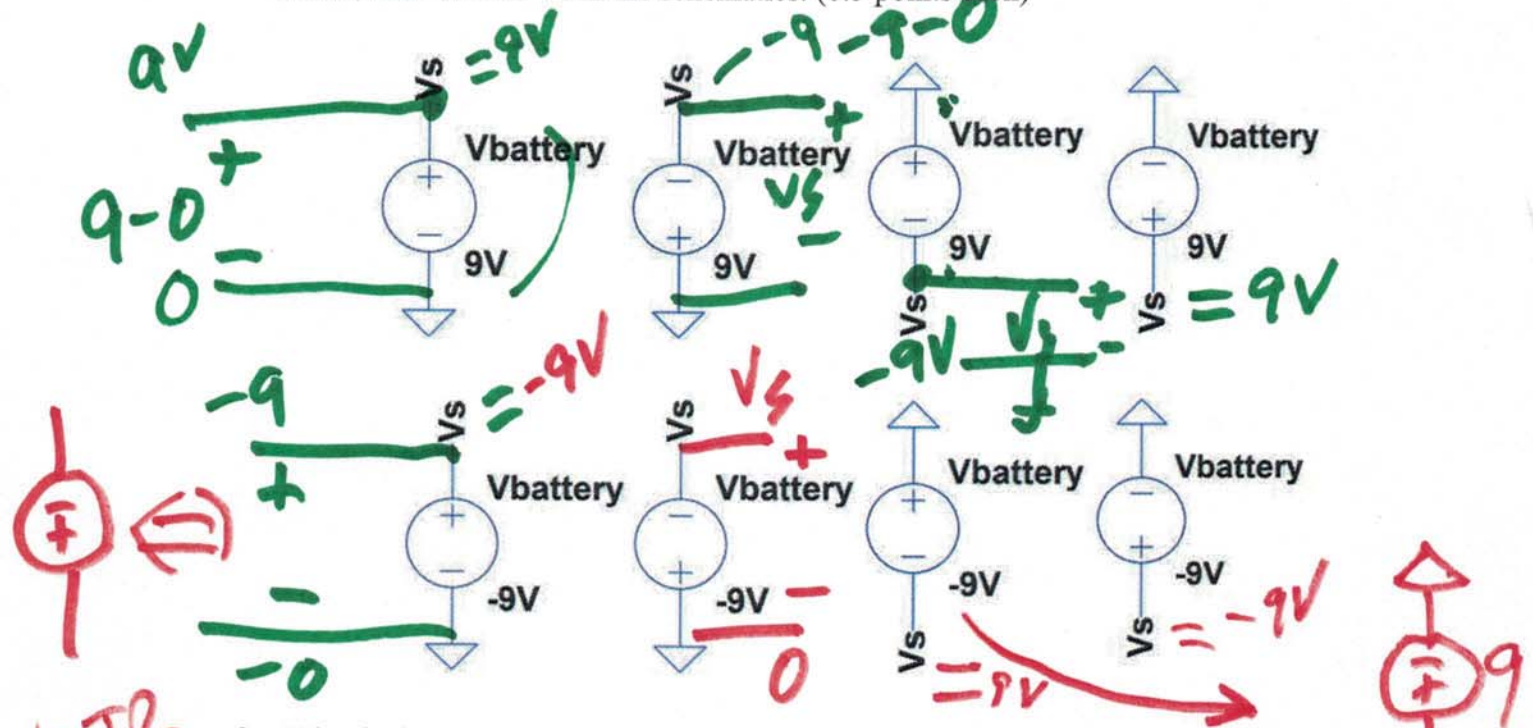


EE 220 circuits I

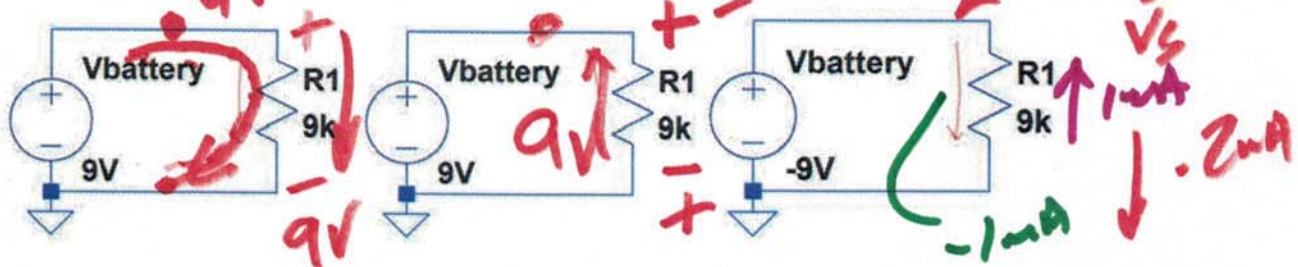
9v Lecture 2



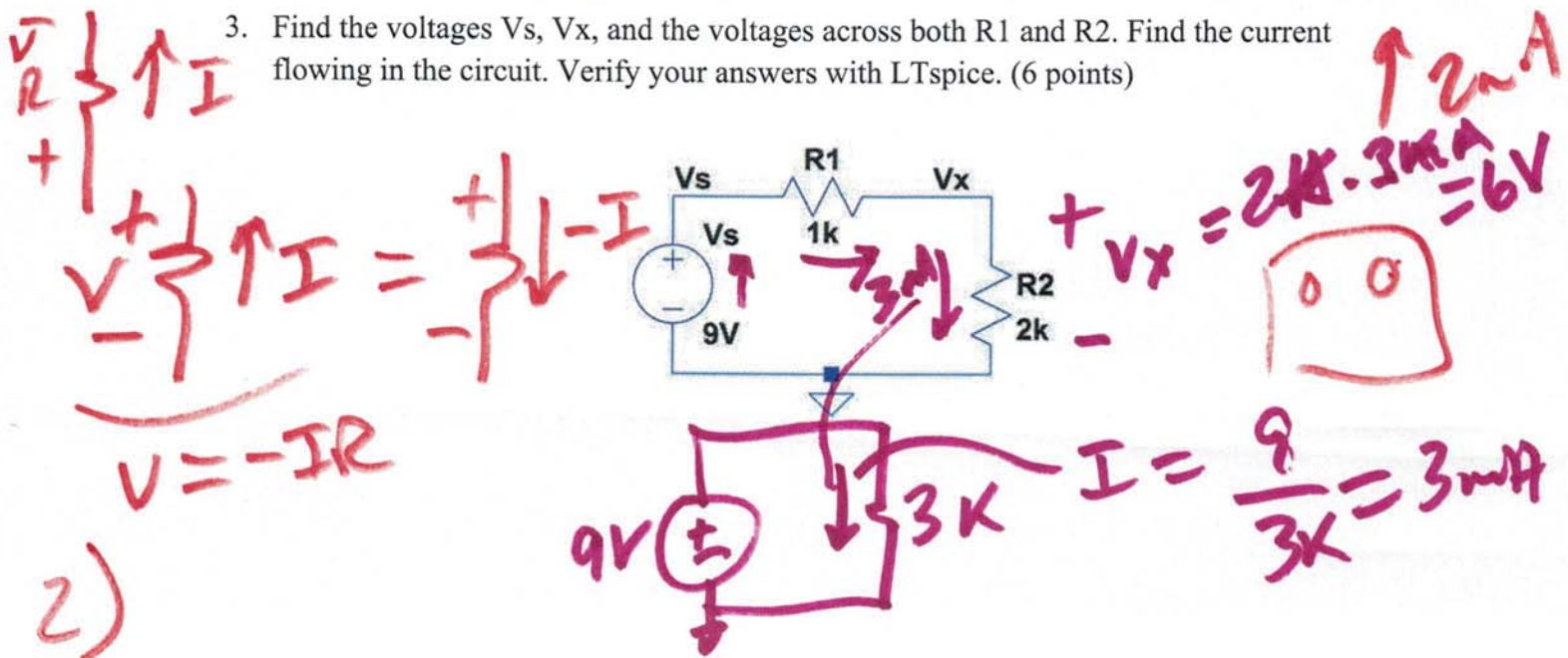
1. What is the voltage, V_s , in each of the following circuits? It's okay to simply write your answer next to each V_s in the schematics. (0.5 points each)

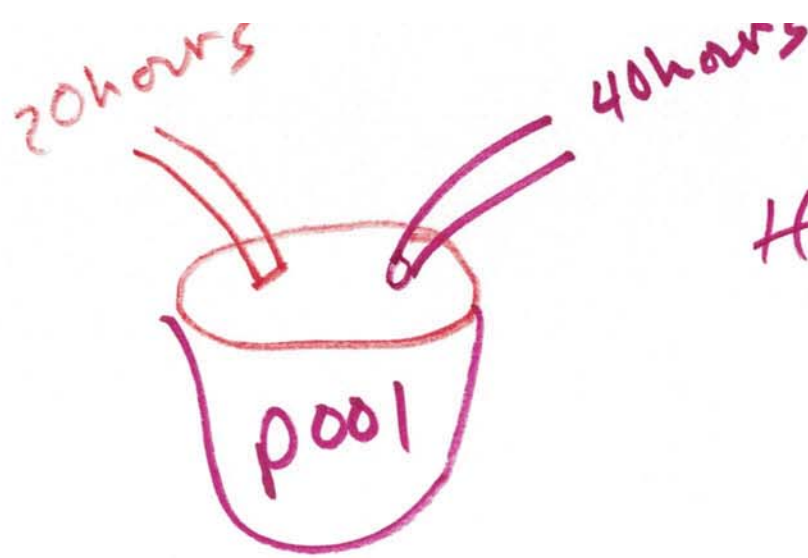


2. What is the current flowing in the following circuits? Give answers for the current flowing in the directions indicated on each schematic. (3 points)



3. Find the voltages V_s , V_x , and the voltages across both R_1 and R_2 . Find the current flowing in the circuit. Verify your answers with LTspice. (6 points)

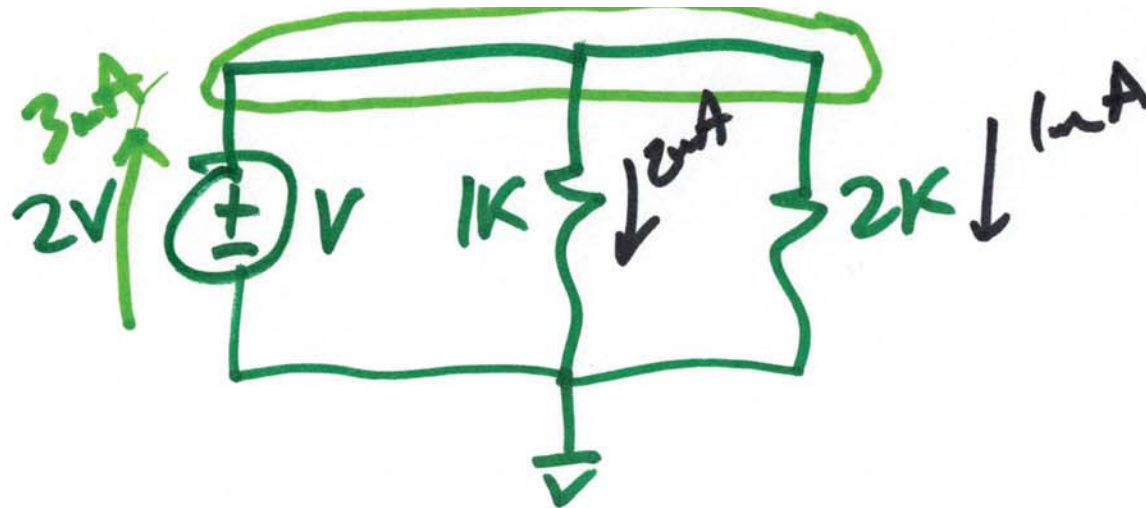




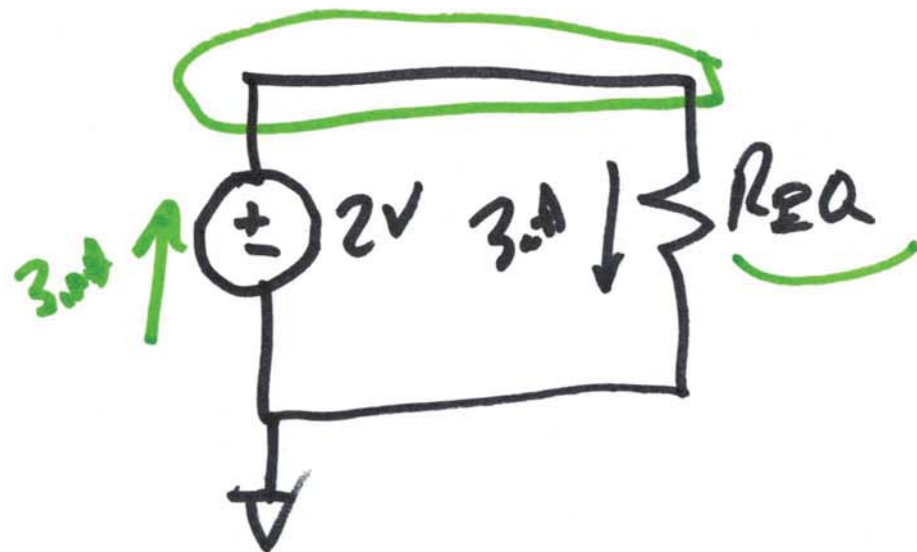
How long does it
take to fill the
pool with both
hoses going?

$$\frac{1 \text{ pool}}{20 \text{ hours}} + \frac{1 \text{ pool}}{40 \text{ hours}} = \frac{1 \text{ pool}}{x \text{ hours}}$$

$$x = \frac{1}{\frac{1}{20} + \frac{1}{40}} = \frac{1}{\frac{20+40}{20 \cdot 40}} = \frac{20 \cdot 40}{20 + 40} = \frac{800}{60}$$



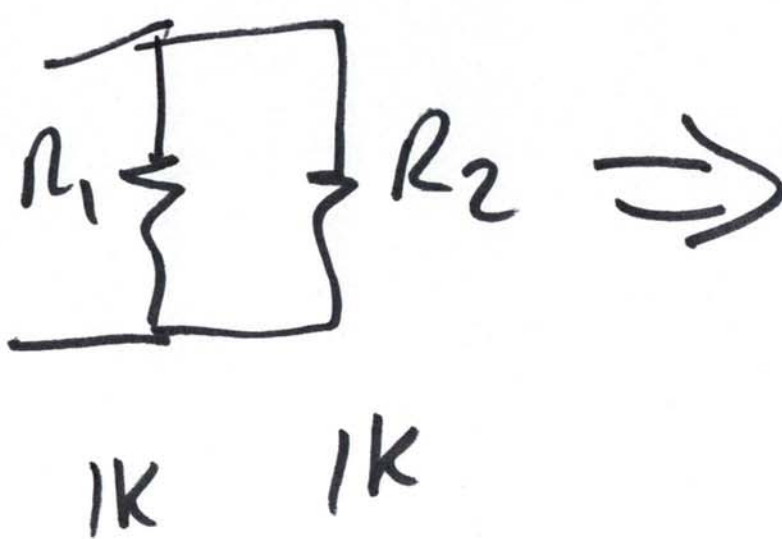
Kirchoff's
current law
KCL



$$\frac{2V}{1K} + \frac{3mA}{2K} = \frac{2V}{R_{EQ}}$$

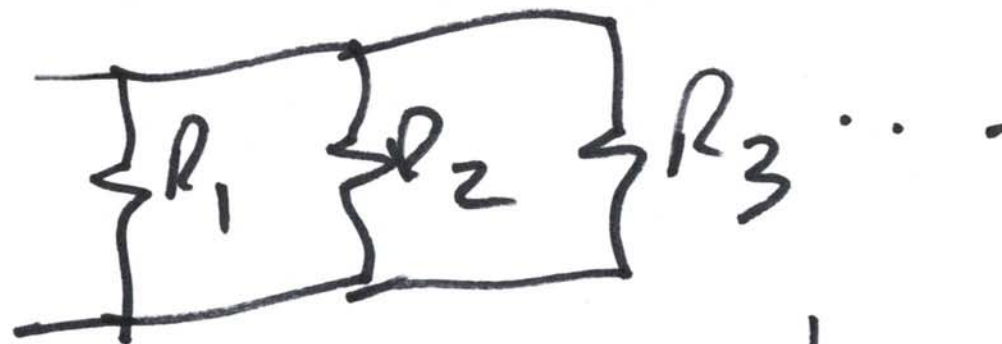
$$R_{EQ} = \frac{1}{\frac{1}{1K} + \frac{1}{2K}}$$

$$= \frac{1K \cdot 2K}{1K + 2K}$$

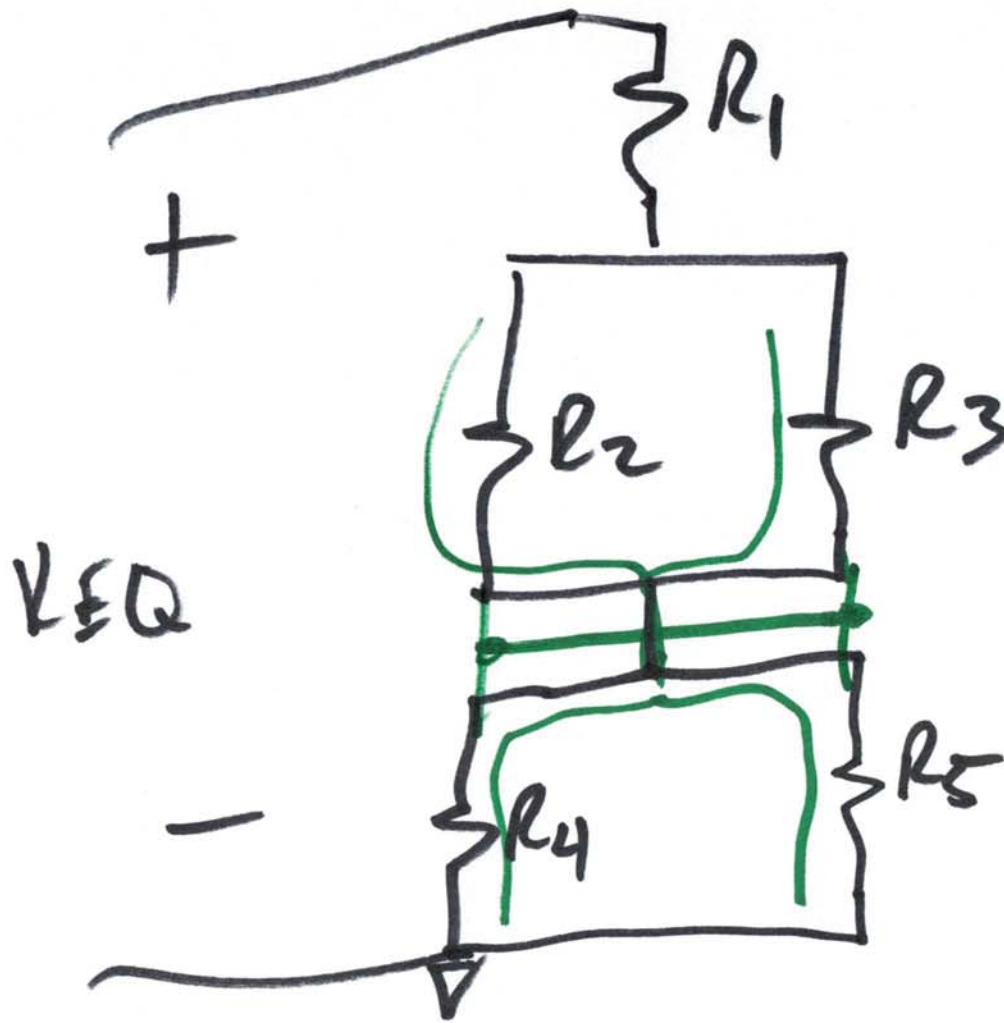


$$\left. \begin{array}{c} R_1 \\ R_2 \end{array} \right\} \Rightarrow \frac{R_1 \cdot R_2}{R_1 + R_2} = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2}}$$

1k 1k



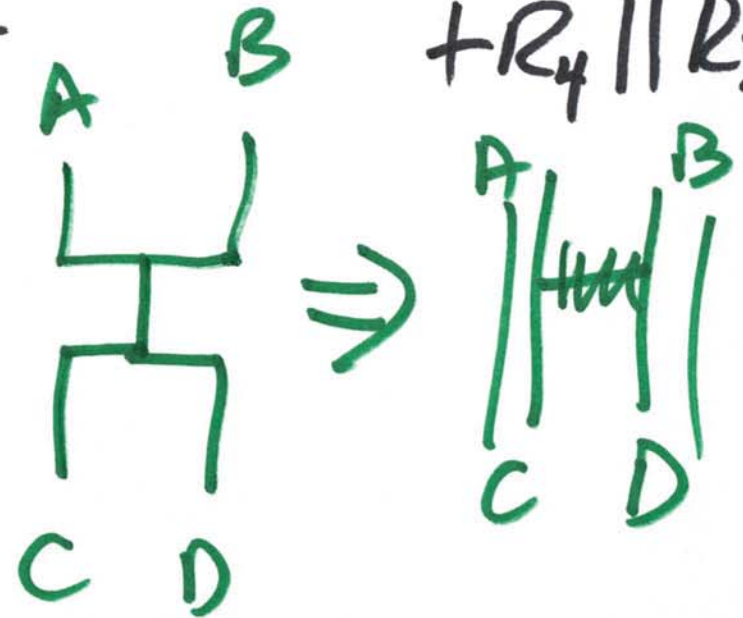
$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$



$$R_2 || R_3 = \frac{R_2 R_3}{R_2 + R_3}$$

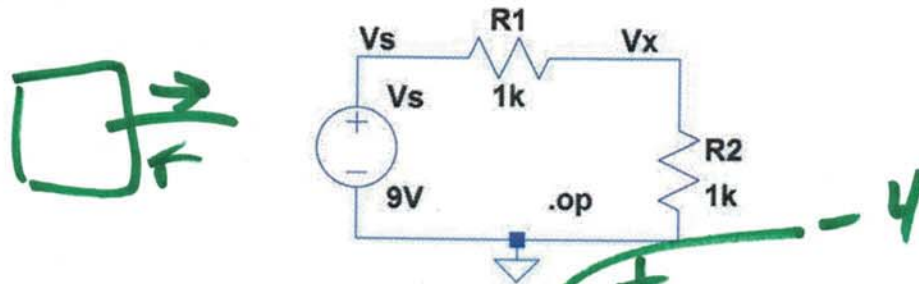
$$\Rightarrow R_1 + R_2 || R_3$$

$$+ R_4 || R_5$$

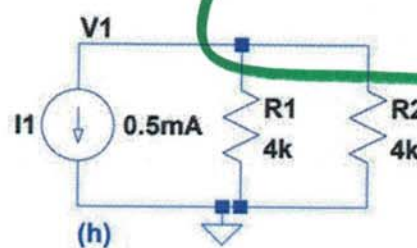
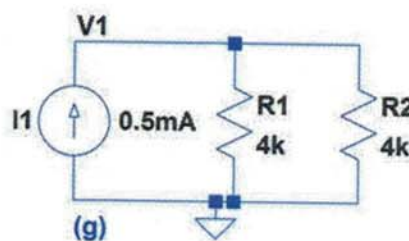
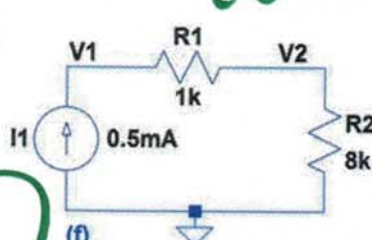
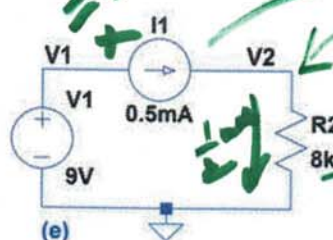
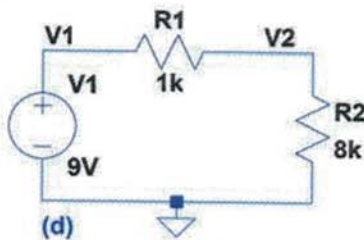
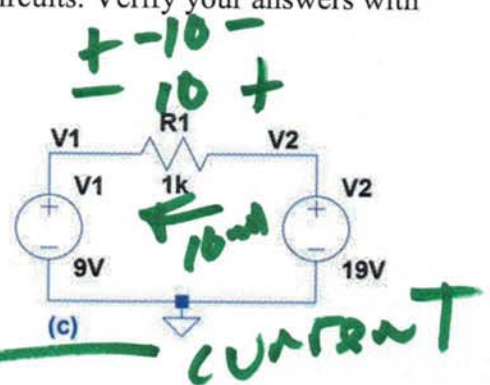
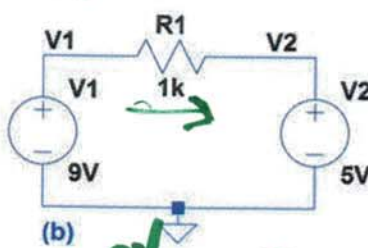
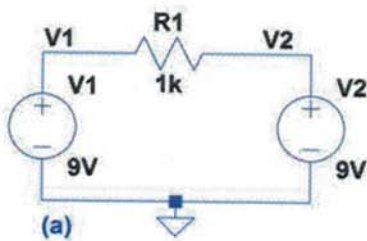


H.W. #2 EE 220 Fall 2016

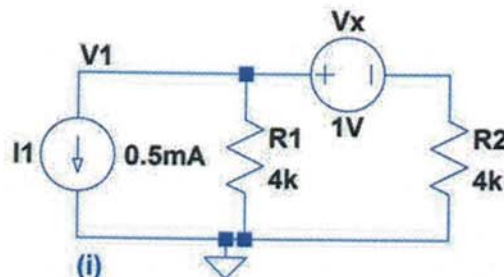
1. Write a text file containing the LTspice netlist for the following circuit. Verify that the simulation results match your hand calculations. (3 points)

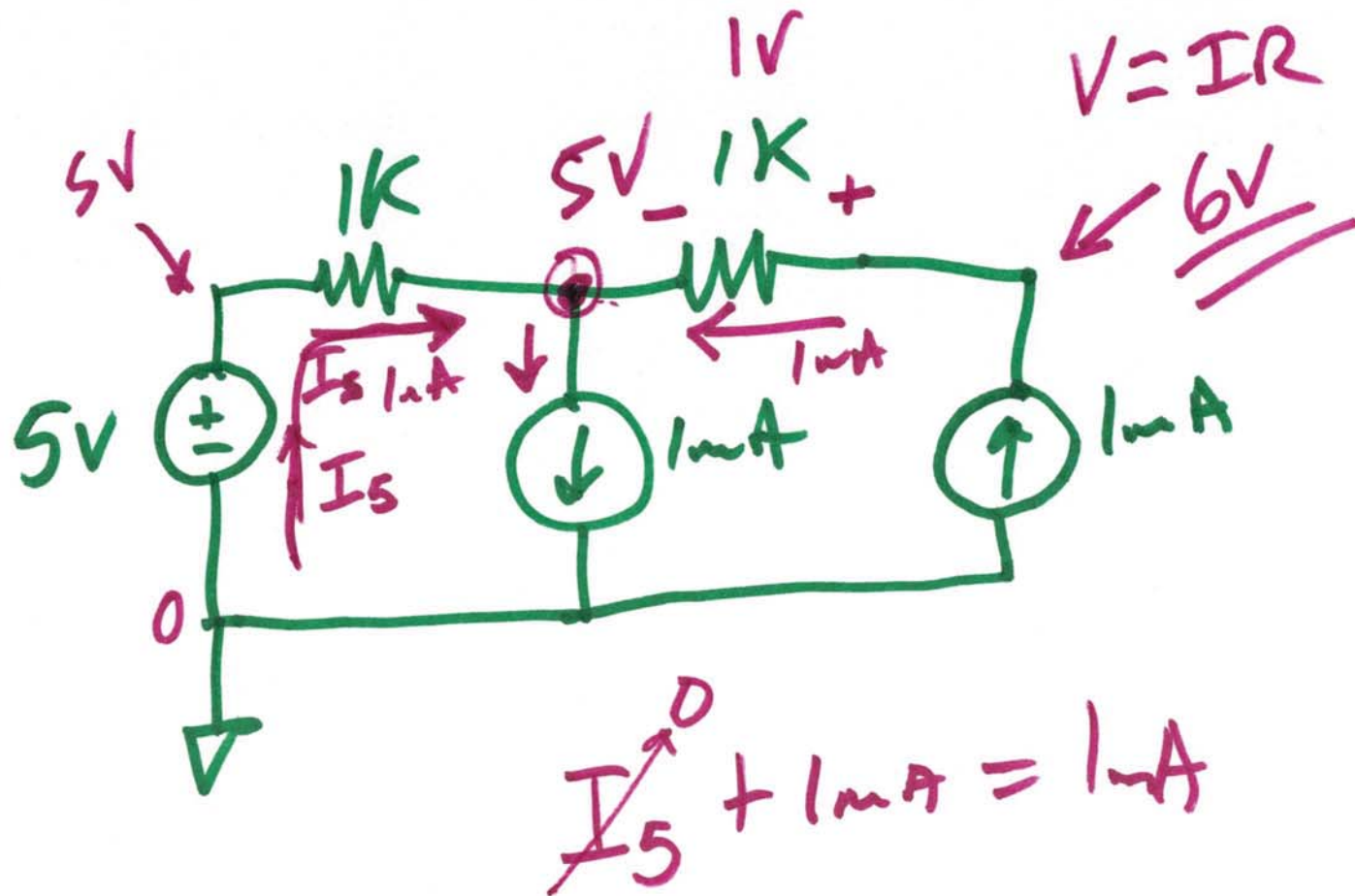


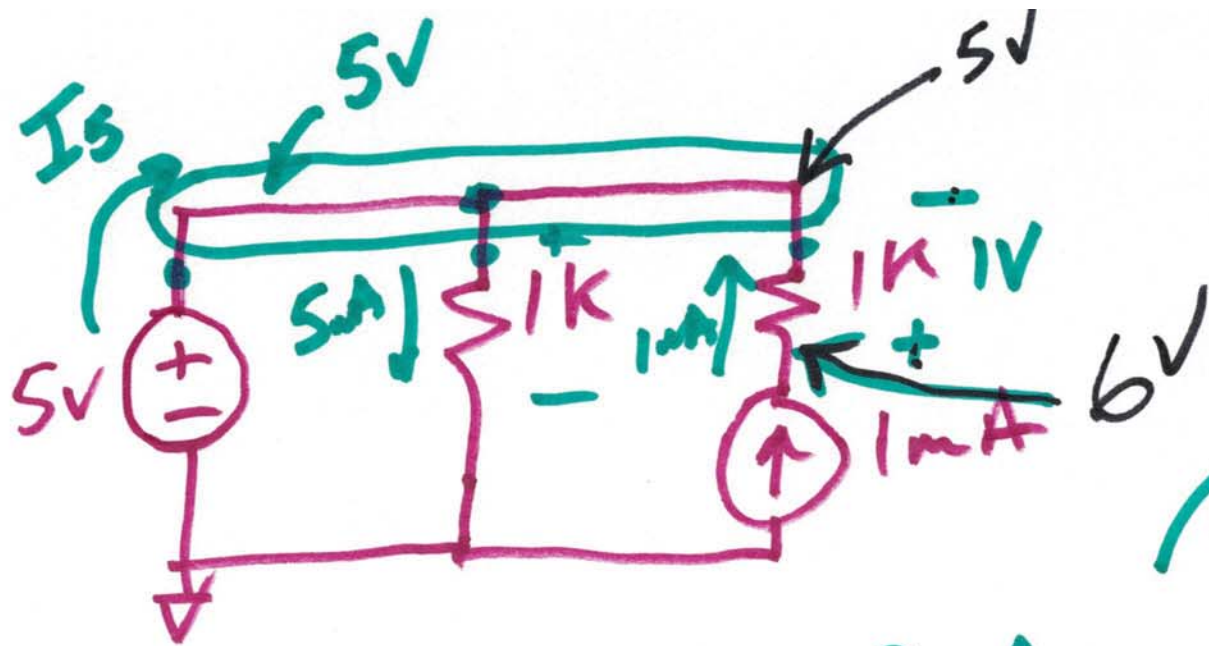
2. Find the voltages and currents in each of the following circuits. Verify your answers with LTspice. (9 points)



Handwritten notes: $2k \cdot \frac{1}{2} = 4V$

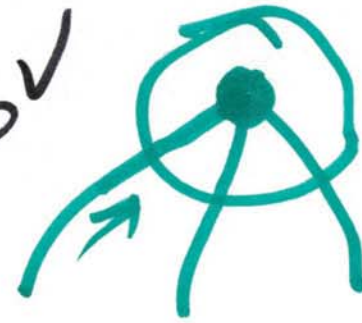






$$1\text{mA} + I_5 = 5\text{mA}$$

$$I_5 = 4\text{mA}$$



study this
for next
quiz :)

a)