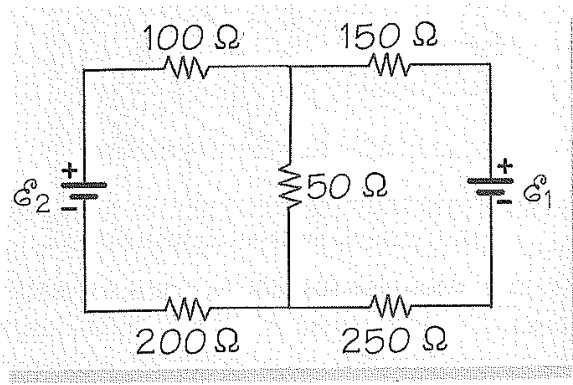


## 3/8 Homework Assignment

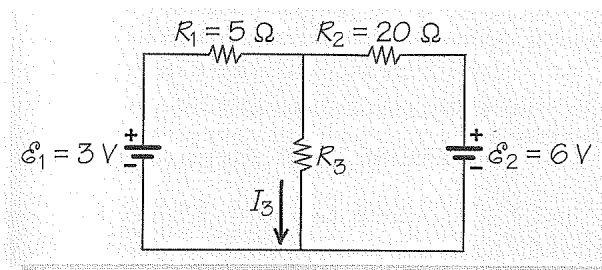
1. Finish the worksheet from class today. You do not have to turn them in. Your currents should be: 0.8462, -0.4615, and 1.3077. (The signs can be different if you drew your arrow a different direction.)
2. Make three column vectors as shown below. Write them out to a text file so that each column vector is a column of the text file. Name it `kirchhoff_YourName.txt`

$$\vec{a} = \begin{bmatrix} 1 \\ 0 \\ 2 \\ 0 \\ 3 \end{bmatrix} \quad \vec{b} = \begin{bmatrix} 5 \\ 6 \\ 7 \\ 8 \\ 9 \end{bmatrix} \quad \vec{c} = \begin{bmatrix} -3 \\ -2 \\ -1 \\ 0 \\ 1 \end{bmatrix}$$

3. For the circuit shown here,  $\mathcal{E}_1 = 6\text{V}$  and  $\mathcal{E}_2 = 9\text{V}$ :



- (a) Use Kirchhoff's Laws to find a system of equations for this circuit. (The  $\mathcal{E}$ 's are just voltages of batteries.  $\mathcal{E}$  is for emf.)
  - (b) Use MATLAB and find the three currents. Type your answers into the end of same text file, label the problem.
4. For the circuit shown here, please use  $R_3 = 10\Omega$ :



- (a) Use Kirchhoff's Laws to find a system of equations for this circuit.

(b) Use MATLAB and find the three currents. Type your answers into the end of same text file, label the problem.

5. Email me the text file with all three parts.