

Name _____

EE 2240

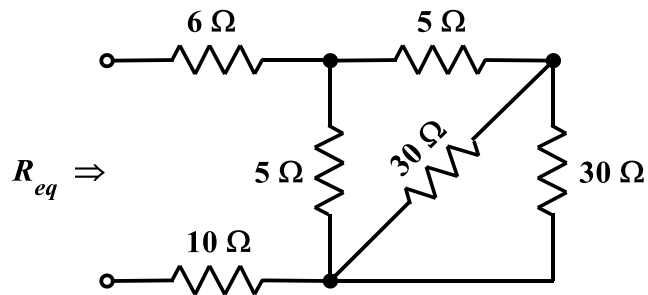
Exam #1

Thursday, February 18, 2016

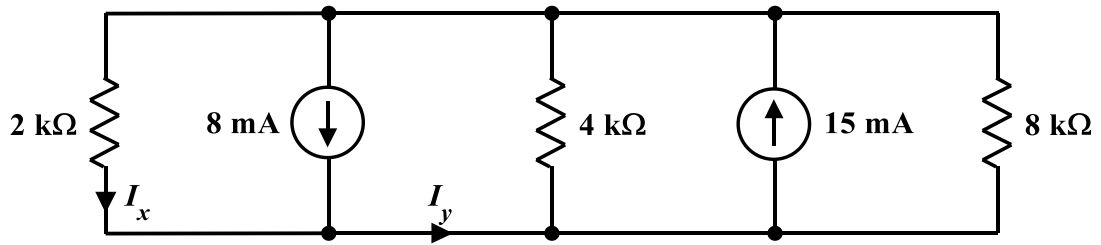
LIBR B32 and TAB 115, 2:30PM – 3:45PM

[closed book – one two-sided 8½”×11” page of notes and calculator allowed, nothing else]

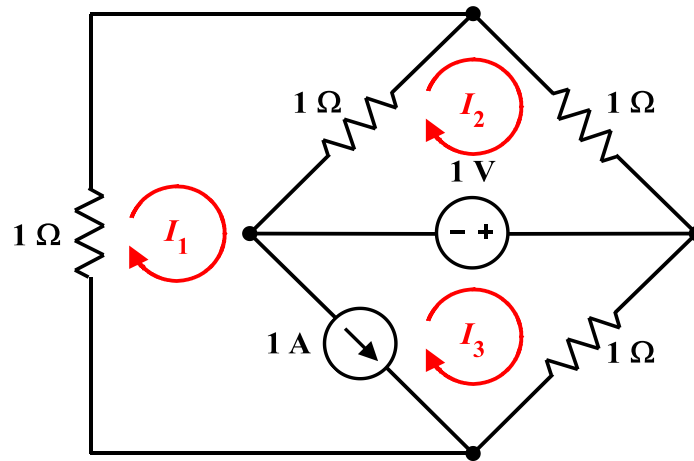
1. [Equivalent Resistance] Determine the value of R_{eq} for the collection of resistors shown.



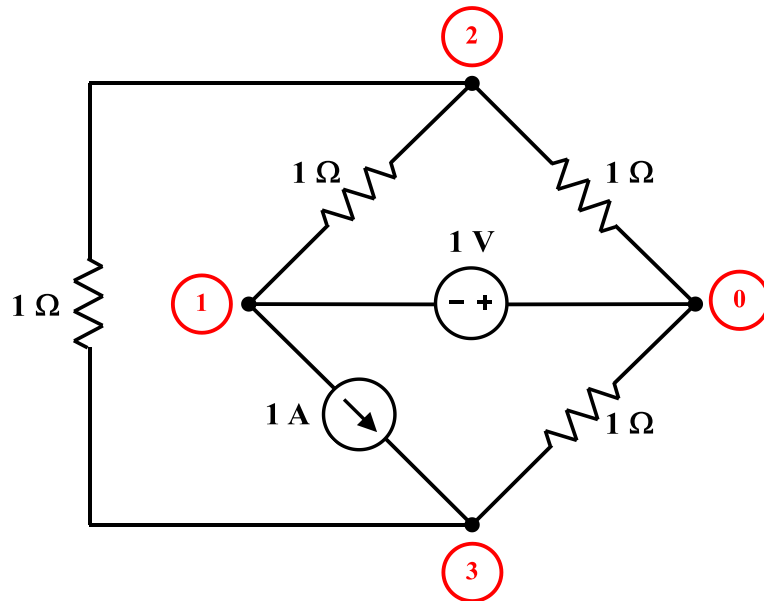
2. [Current Division] Determine the values of I_x and I_y in the circuit shown.



3. [Mesh Analysis] Determine a set of equations that could be used to analyze the circuit shown by the mesh-analysis method, and express them in the standard matrix form. Use the mesh currents that are already assigned. *Do not attempt to solve the equations.*



4. [Nodal Analysis] Determine a set of equations that could be used to analyze the circuit shown by the nodal-analysis method, and express them in the standard matrix form. Use the node labels that are already assigned. *Do not attempt to solve the equations.*



5. A set of simultaneous linear equations is given in standard matrix form below. Use any method to determine the numerical value of z . ***Check your solution; there will be very little partial credit on this problem.***

$$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 2 & 3 \\ 4 & 4 & 7 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 8 \\ 23 \\ 53 \end{bmatrix}$$