

Name _____

EE/EET 2240-01/02

Exam #1

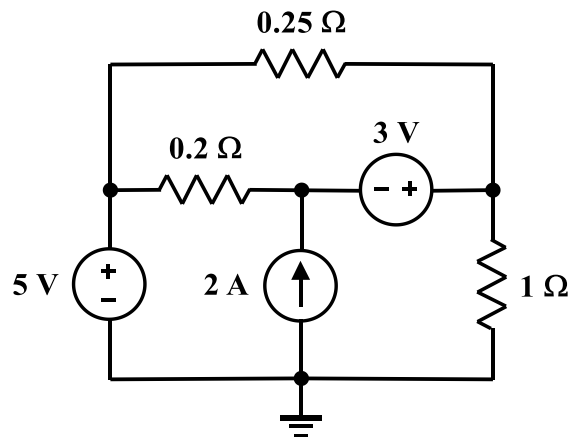
Friday, May 25, 2018

LIBR B-36 and TAB 115, 8:00AM – 9:15AM

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

1. [Nodal Analysis] Use the nodal analysis method, and the corresponding rules (no substitutions or simplifications) discussed in class, to formulate a system of simultaneous linear equations representing the circuit shown. Express the equations in the matrix form discussed in class.

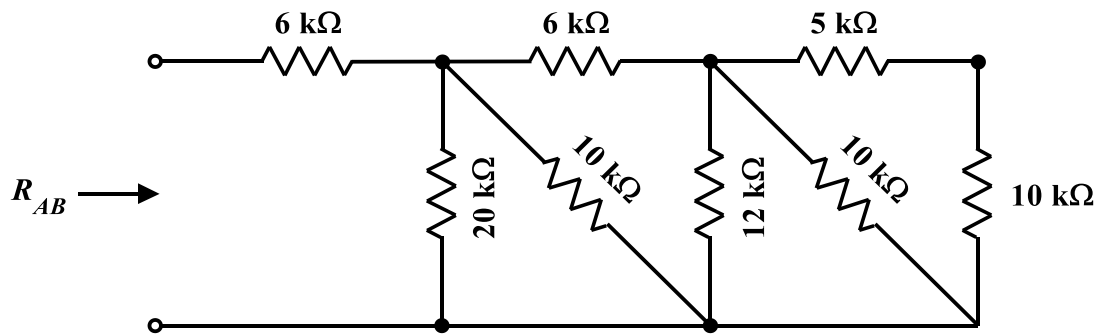
Do not attempt to solve the equations.



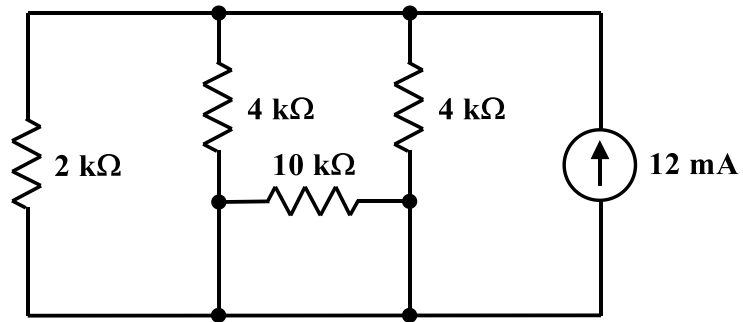
2. [Solution of Simultaneous Linear Equations] Determine the value of z in the system of equations shown below. Please check your work; there will be no partial credit on this problem.

$$\begin{bmatrix} 2 & 5 & 1 \\ 3 & 1 & 7 \\ 0 & 2 & 5 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -3 \\ 2 \\ -2 \end{bmatrix}$$

3. [Equivalent Resistance] Determine the equivalent resistance, R_{AB} , with respect to terminals A and B .



4. Determine:



(a) the amount of power absorbed by the 10 kΩ resistor,

(b) the amount of power absorbed by the 2 kΩ resistor, and

(c) the amount of power delivered by the independent current source.