Name _____

By writing or printing my name in the space above, I hereby affirm that I have neither given nor received assistance in preparing solutions for this exam.

EE 2240

Exam #1

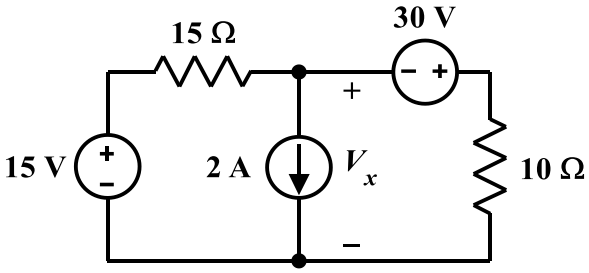
Due by 9:15AM, Tuesday, September 28, 2021

[open book, open notes, calculator and computer allowed – no internet access]

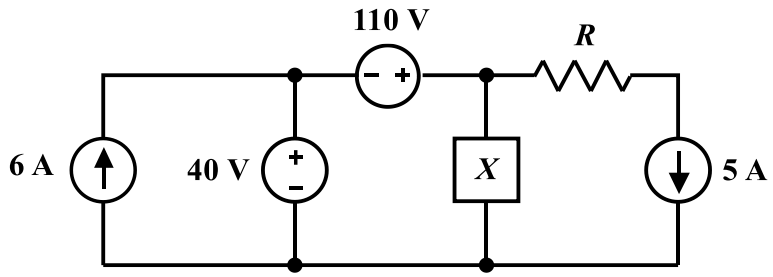
Work must be neat, orderly, and complete in order to receive partial credit.

***PLEASE* submit your solutions as a single PDF file.**

1. Use any method to determine the numerical value of V_x.



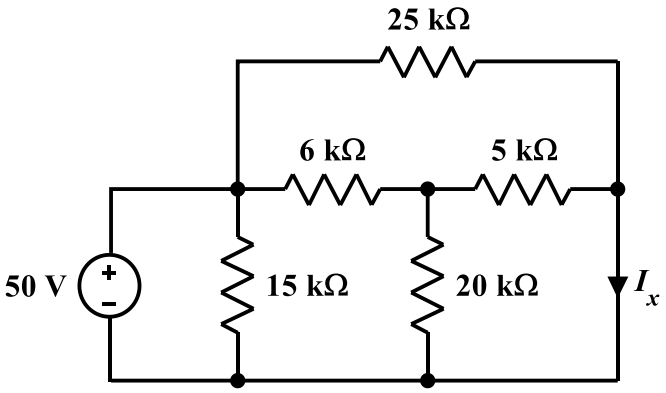
2. The 5A independent current source is delivering 100W, and the 40V independent voltage source is delivering 500W.



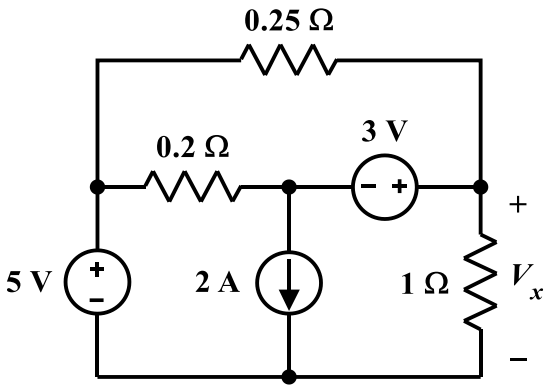
a. Determine the value of resistor *R*.

b. Is component *X* absorbing power or delivering power? How much?

3. Determine the numerical value of the current I_x.



4. Use the nodal analysis method to formulate a system of simultaneous linear equations representing the circuit shown, that can be solved to determine the numerical value of V_x directly.



a. Express the equations in the matrix form discussed in class.

b. Solve the equations to determine the numerical value of V_x.