

Name: \_\_\_\_\_ (please print)

Signature: \_\_\_\_\_

**ECE 2201 – Quiz #3**  
**October 6, 2021**

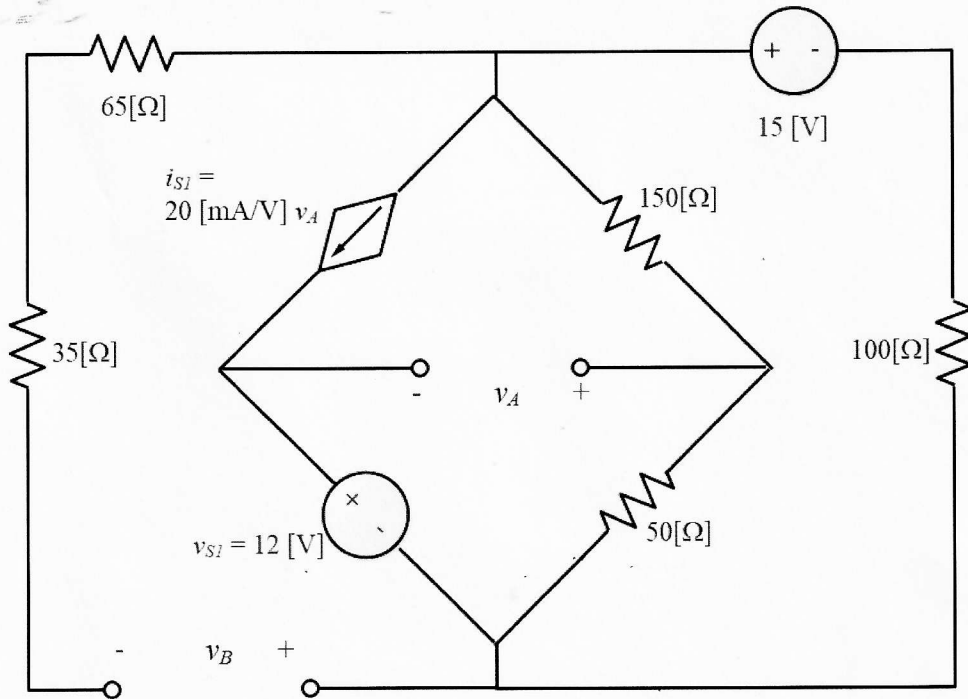
- This quiz is closed book, closed notes. You may not work with another person or try to obtain the answer to the quiz online.
- Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.
- Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.
- If the grader has difficulty following your work because it is messy or disorganized, you will lose credit.
- Do not use red ink. Do not use red pencil.
- You will have 30 minutes to work on this quiz.

\_\_\_\_\_ /25

Room for extra work

For the circuit below, do the following.

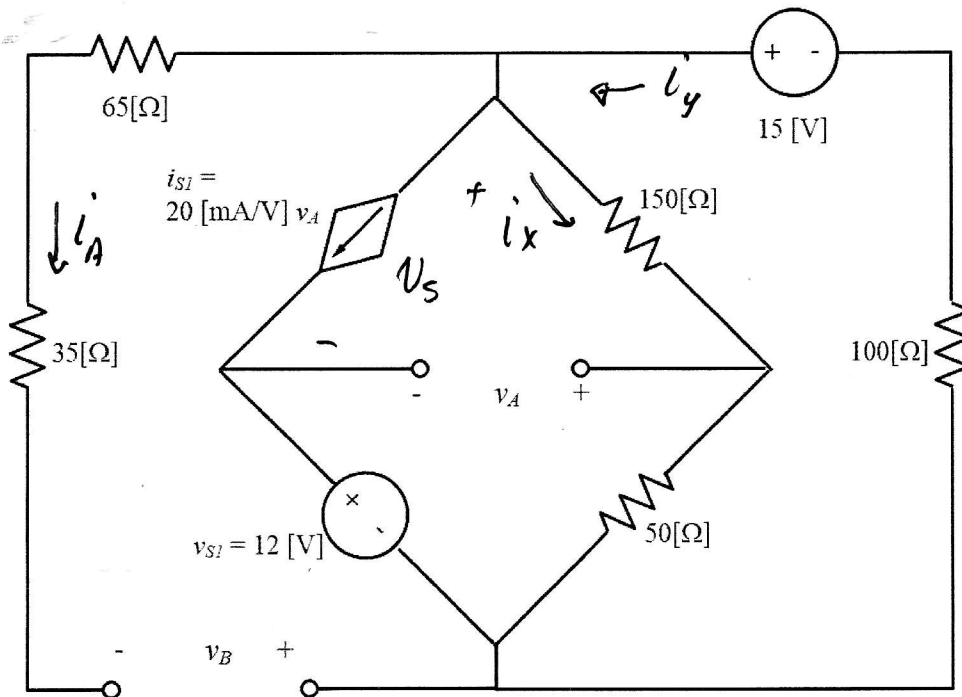
- a) Find the power delivered by the dependent current source  $i_{S1}$ .
- b) Find the power absorbed by the  $50\ [\Omega]$  resistor.



Room for extra work

For the circuit below, do the following.

- Find the power delivered by the dependent current source  $i_{s1}$ .
- Find the power absorbed by the  $50\ [\Omega]$  resistor.



The current  $i_A = 0$  and voltage  $v_B$  is not relevant. So this is a simple two-mesh circuit and we can use KVL, KCL to find the unknown currents  $i_x$  &  $i_y$ .

$$\left. \begin{aligned} i_y &= i_x + 0.02 v_A \\ 100 i_y - 15 + 150 i_x + 50 i_x &= 0 \\ -v_A + 50 i_x - 12 &= 0 \end{aligned} \right\} \begin{aligned} i_x &= 97.5\ \text{mA} \\ i_y &= -45.0\ \text{mA} \\ v_A &= -7.125\ \text{V} \end{aligned}$$

$$P_{\text{del by } i_{s1}} = v_s - v_A - 150 i_x = 0 \Rightarrow v_s = 7.5\ \text{V}$$

$$P_{\text{del by } i_{s1}} = -v_s \cdot i_{s1} = -7.5 (0.02 v_A) = 1.07\ \text{W}$$

$$P_{\text{abs by } 50\ \Omega} = 50 \cdot i_x^2 = 0.475\ \text{W}$$