

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

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

ECE 2201 – Quiz #2a  
September 19, 2019

**Keep this quiz closed and face up  
until you are told to begin.**

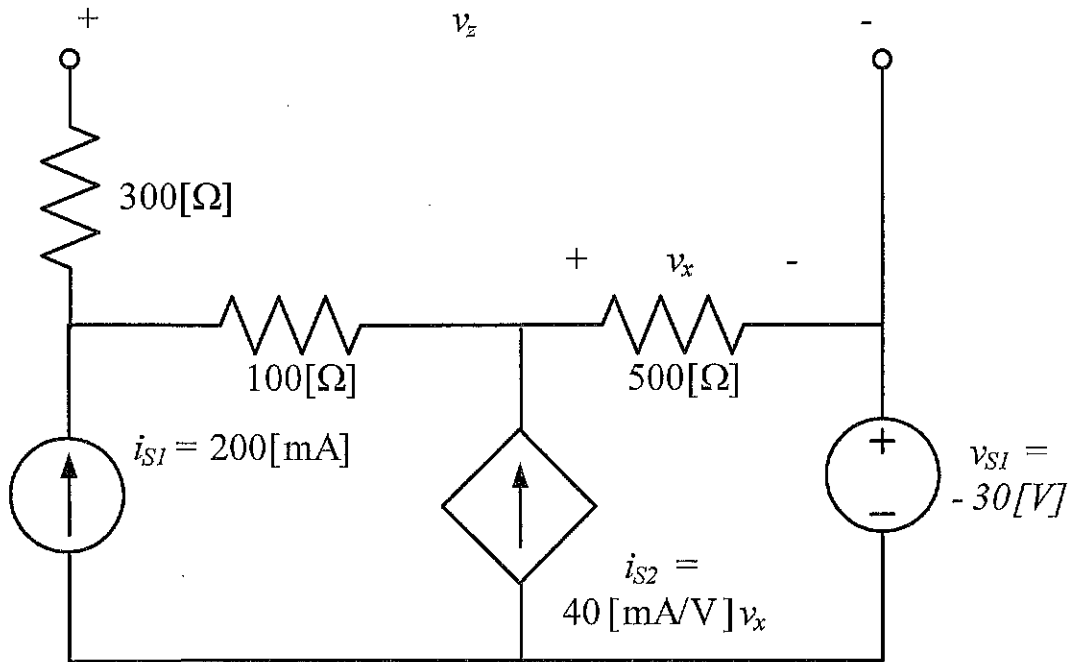
1. This quiz is closed book, closed notes. You may use one 8.5" x 11" crib sheet, or its equivalent.
2. Show all work on these pages. Show all work necessary to complete the problem. A solution without the appropriate work shown will receive no credit. A solution which is not given in a reasonable order will lose credit.
3. Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.
4. If the grader has difficulty following your work because it is messy or disorganized, you will lose credit.
5. Do not use red ink. Do not use red pencil.
6. You will have 30 minutes to work on this quiz.

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

Room for extra work

For the circuit below, do the following:

- Find the power delivered by the independent current source.
- Find  $v_z$ .



Room for extra work

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

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

ECE 2201 – Quiz #2<sup>ab</sup>  
September 19, 2019

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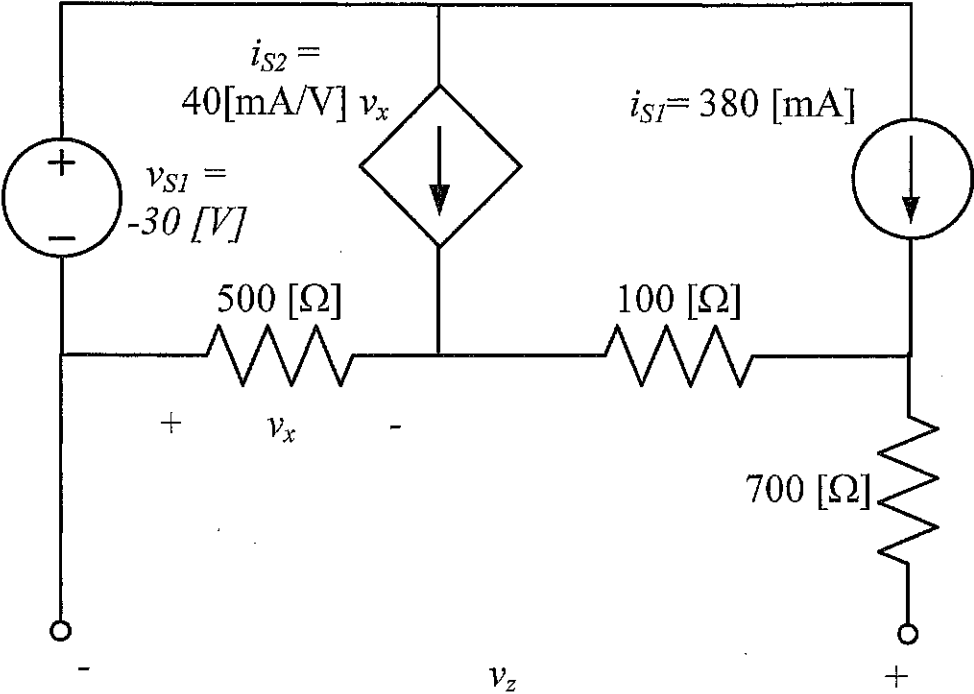
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6. You will have 30 minutes to work on this quiz.

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

Room for extra work

For the circuit below, do the following:

- a) Find the power delivered by the independent current source.
- b) Find  $v_z$ .

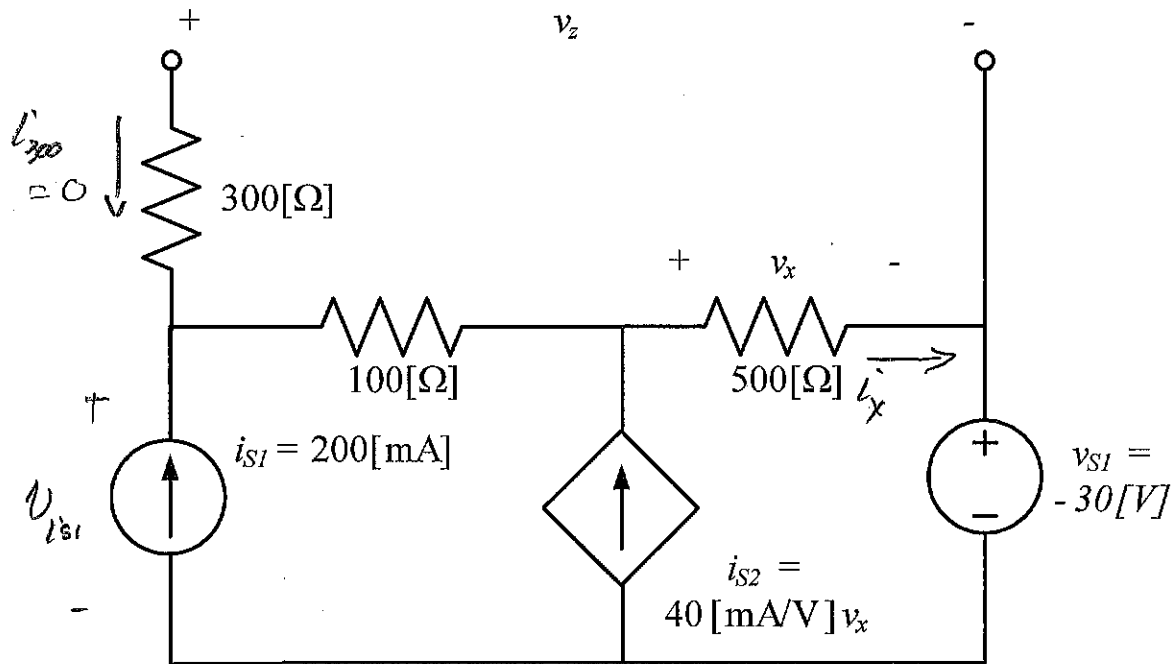


Room for extra work



For the circuit below, do the following:

- Find the power delivered by the independent current source.
- Find  $v_z$ .

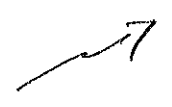


(14) KCL:  $i_x = 0.2 + 0.04 v_x$  +4

$\therefore v_x = 500 i_x = 20 v_x + 100 \Rightarrow v_x = \frac{-100}{19} = -5.2632 \text{ [V]}$  +4

KVL:  $-v_{i_{s1}} + 100(0.2) + v_x - 30 = 0$  +6  
 $\Rightarrow v_{i_{s1}} = -15.2632 \text{ [V]}$

$P_{\text{del by } i_{s1}} = i_{s1} v_{i_{s1}} = (-15.2632)(0.2) = \underline{-3.0526 \text{ [W]}}$  +3



Room for extra work

$$b) \quad U_2 - U_x - 100(0.2) = 0$$

(no current or voltage  
for 300 [Ω])

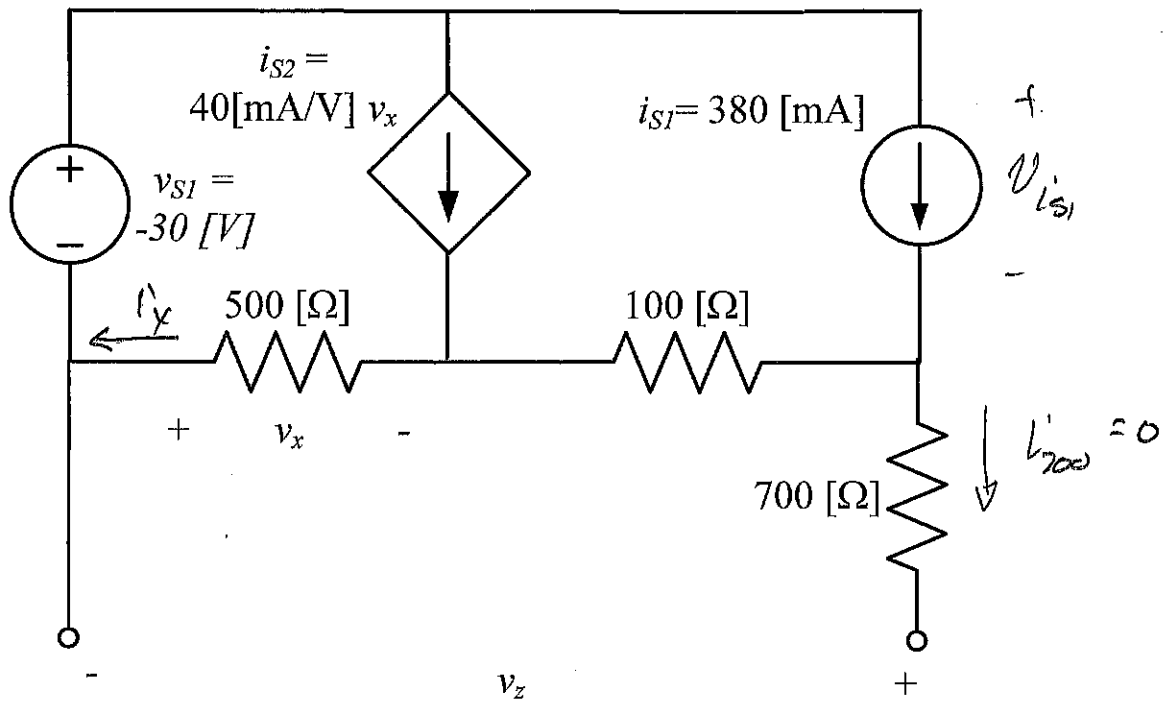
x 8

⇒

$$U_2 = 14.7368$$

For the circuit below, do the following:

- Find the power delivered by the independent current source.
- Find  $v_z$ .



KCL:

$$i_x = 0.04 v_x + 0.380$$

$$\therefore v_x = -500 i_x = -20 v_x - 190 \Rightarrow v_x = -\frac{190}{21} = -9.0476 \text{ [V]}$$

$$\text{KVL: } v_{i_{S1}} + 100(0.380) - v_x + 30 = 0$$

$$\Rightarrow v_{i_{S1}} = v_x - 38 - 30 = -77.0476 \text{ [V]}$$

$$P_{\text{del by } i_{S1}} = v_{i_{S1}} \cdot i_{S1} = (-77.048)(0.380) = -29.278 \text{ [W]}$$

Room for extra work

(no current or voltage  
for 20[Ω])

$$b) \quad V_z + V_x - 106(0.2) = 0$$

$$\boxed{V_z = 20 - V_x = 29.0476 \text{ [V]}}$$