Name: SOLUTIONS (please print)

Signature: _____

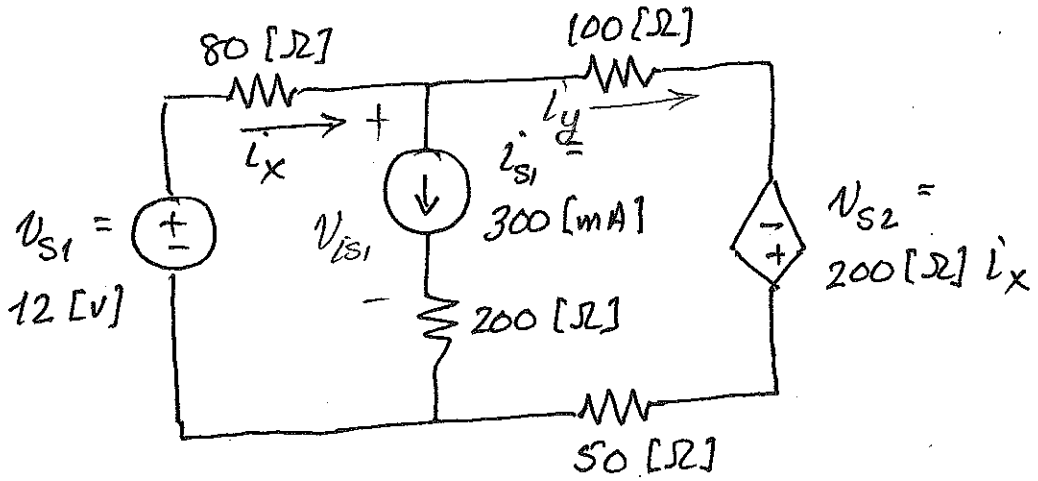
ECE 2300 – Quiz #2 Version 1
September 20, 2012

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 necessary to complete the problem. A solution without the appropriate work shown will receive no credit.
3. Show all units in solutions, intermediate results, and figures. Units in the quiz will be included between square brackets.
4. Do not use red ink. Do not use red pencil.
5. You will have 30 minutes to work on this quiz.

_____/20

In the circuit below, find the power delivered by the independent current source.



we will need v_{is1} which we get from a KVL:

+6 $$v_{is1} + 0.3(200) - 12 + 80\,i_x' = 0$$

we need an equation for i_x'...

+4 $$i_x' = 0.3 + i_y'$$

... and another since we introduced i_y':

+5 $$100\,i_y' - 200\,i_x' + 50\,i_y' - 12 + 80\,i_x' = 0$$

So we have 3 eqns, 3 unknowns...,

+2 $$v_{is1} = -200\ [V] \qquad i_x' = 1.9\ [A] \qquad i_y' = 1.6\ [A]$$

+3 $$\therefore\ P_{del,\,is1} = -i_{s1} \cdot v_{is1} = -(-200)(0.3) = 60\ [W]$$

Name: SOLUTIONS (please print)

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Version 2

ECE 2300 – Quiz #2
September 20, 2012

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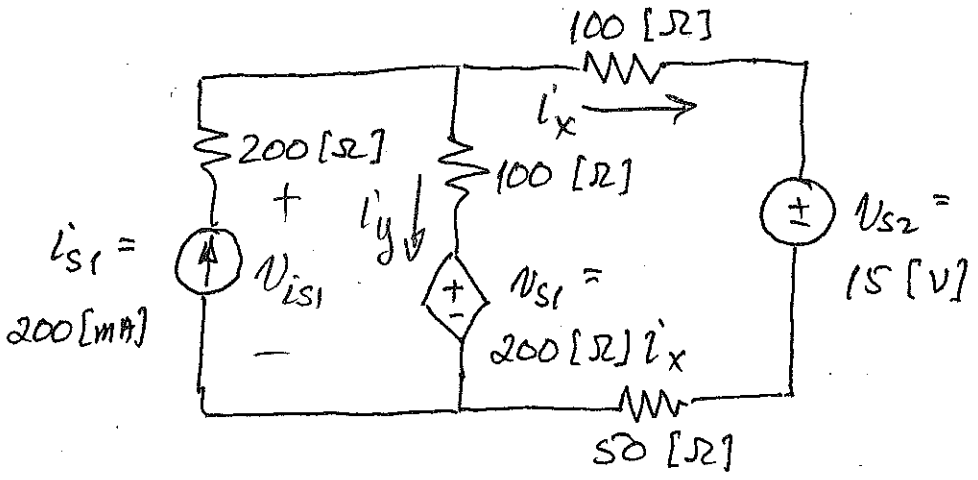

We are going to need v_{is1}, which we get with a KVL:

$$-v_{is1} + 0.2(200) + 100 i'_x + 15 + 50 i'_x = 0$$

We need an equation for i'_x...

$$-0.2 + i'_y + i'_x = 0$$

... and another since we have introduced i'_y:

$$100 i'_y + 200 i'_x - 50 i'_x - 15 - 100 i'_x = 0$$

So we have 3 eqns, 3 unknowns...

$$v_{is1} = 70 \text{ [V]} \qquad i'_x = 0.1 \text{ [A]} \qquad i'_y = 0.1 \text{ [A]}$$

$$\therefore \quad P_{del,i's1} = v_{is1} \cdot i_{s1} = 14 \text{ [W]}$$