Homework Guidelines

Homework will play a particularly important role in this class. By completing the homework you will gain a deeper understanding of the concepts, and you will sharpen your problem solving skills so that you are competent to solve new problems that you haven't seen before. The Homework problems will provide you with helpful practice; work them on your own or in groups after you have done the reading assignment.

On homework, and tests, you are required to be able to differentiate and integrate simple functions, solve simultaneous linear equations, and to perform basic calculations with your calculator. Laptops should only be used to check your results outside of class, as they will not be available for the tests. Students are encouraged to do homework together and to study together, bearing in mind that outright copying of homework solutions is counter-productive to learning the material and obviously dishonest behavior.

Approximately 4 homework problems are assigned each lecture day. Problems are selected from material covered in class approximately 1-2 previous lecture days. Each problem is to be done on a separate page of standard engineering paper following the standard described below:

- In the box at the top left is your name or initials.
- In the middle box is the problem number.
- In the box at the top right is the page number and total number of pages in the assignment.
- First on the page of each problem is a complete statement of the problem. That means you must rewrite the circuit on your homework paper. You may feel free to photocopy and paste the problem statement from the book or assignment provided.
- On the rest of the page is your work to solve the problem. This work should progress in a logical manner from top to bottom, not woven all around the page.
- Results must be boxed to make them obvious.
- Results without units are incorrect.
- Each complete set is to be stapled in the upper left corner with a cover sheet giving your name, your campus box number, the homework set number, the course, the date, and a table of problems attempted.

An example homework assignment following the required format is included in the next pages.

Deborah Walter
CM 105

Homework #4 (Solutions)
ES 203

Due Date: 30 September 2008

2.20 _____

Problem 2 _____

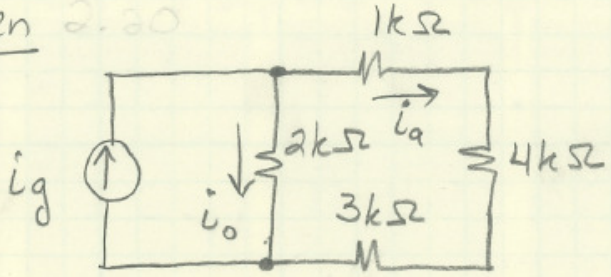
2.24 _____

2.25 _____

total _____

DJW P 2.20 1/12

Given

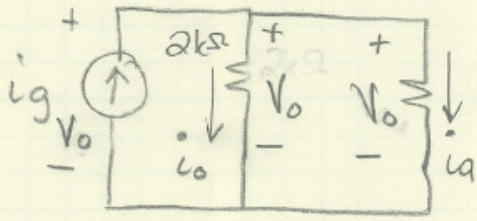


$i_a = 2mA$

Find i_o, i_g, and power delivered by source

Reduce ckt to equivalent network

notice 1kΩ, 4kΩ and 3kΩ are in series



$R_{eq} = (1+4+3)k\Omega$

$= 8k\Omega$

apply KCL: $i_g = i_o + i_a$

notice all elements are in parallel - connected to the same pair of nodes. Therefore the voltage across the elements is the same.

apply Ohm's Law:

$$V_o = i_o \cdot 2k\Omega = i_a \cdot 8k\Omega$$

solve for V_o

$$V_o = i_a \cdot 8k\Omega = (2mA)(8k\Omega) = 16\,V$$

solve for i_o

$$V_o = i_o \cdot 2k\Omega \Rightarrow \boxed{i_o = \frac{16\,V}{2k\Omega} = 8mA}$$

solve for i_g $\boxed{i_g = i_o + i_a = 8mA + 2mA = 10mA}$