

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

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

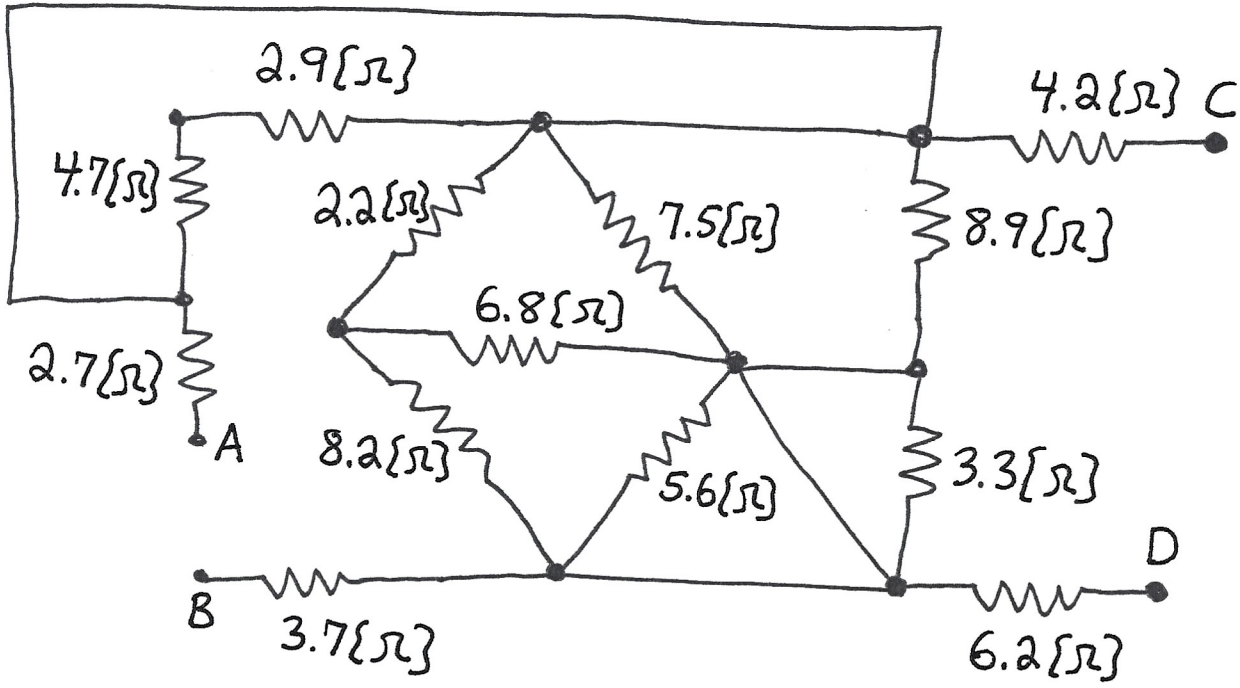
ECE 2201 – Quiz #4 – Shattuck Section  
April 7, 2022

1. This quiz is closed book, closed notes. You may use one 8.5" x 11" crib sheet, or its equivalent. You may use a calculator. You should **not** use a cell phone, tablet computer, or laptop computer, as you work on this quiz.
2. Show all work on these pages. You may use both sides of each page. 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. You may separate the pages as you work.
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 20 minutes to work on this quiz.

\_\_\_\_\_ /20

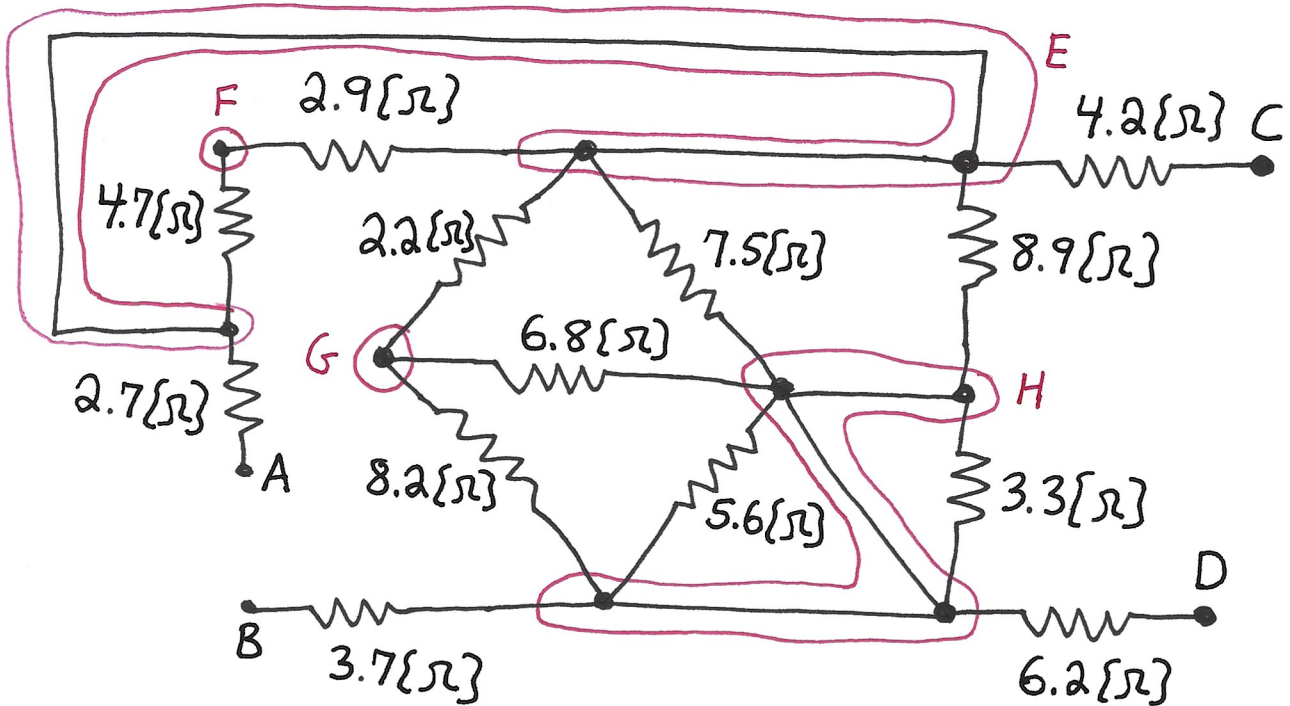
Room for extra work

Find the numerical value of the equivalent resistance as seen by terminals A and B in the circuit given below. Show your work clearly. Show enough steps so that a well-prepared circuits student could follow your work.



Room for extra work

Find the numerical value of the equivalent resistance as seen by terminals A and B in the circuit given below. Show your work clearly. Show enough steps so that a well-prepared circuits student could follow your work.



We begin by identifying and naming the nodes in the diagram above. Next, we note that the  $3.3\{\Omega\}$  and  $5.6\{\Omega\}$  resistors are each shorted, and can be replaced by open circuits. Also, the  $4.2\{\Omega\}$  and  $6.2\{\Omega\}$  resistors are each open-circuited, and can be replaced with short circuits. In addition,

$$4.7\{\Omega\} + 2.9\{\Omega\} = 7.6\{\Omega\}$$

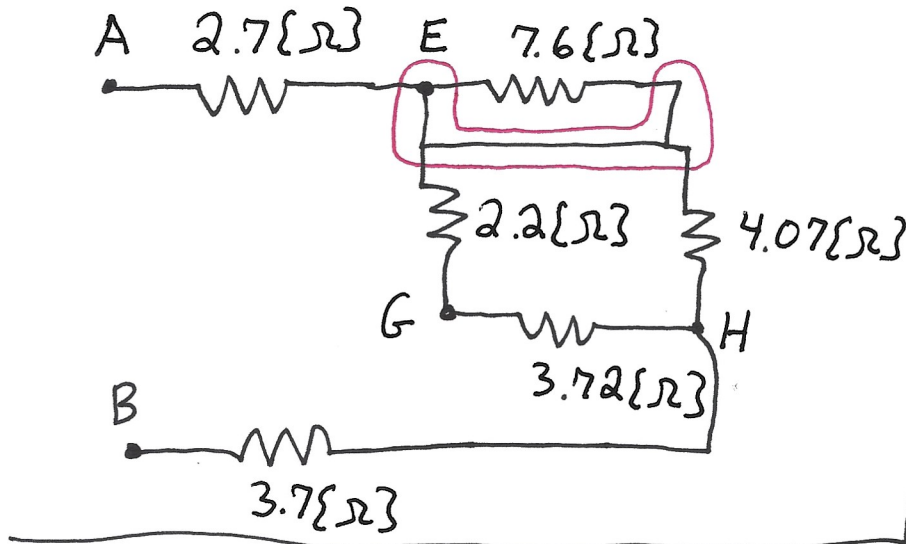
$$7.5\{\Omega\} \parallel 8.9\{\Omega\} = 4.07\{\Omega\}$$

$$6.8\{\Omega\} \parallel 8.2\{\Omega\} = 3.72\{\Omega\}$$

See  
next  
page

Room for extra work

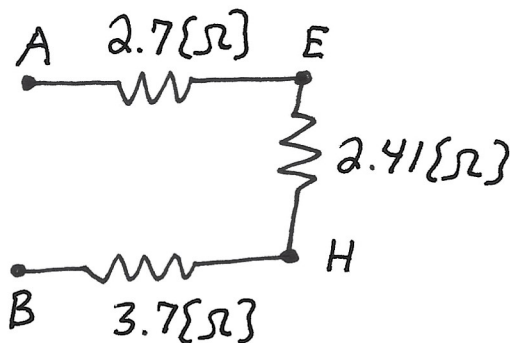
With these simplifications, we can redraw.



The  $7.6\{\Omega\}$  resistor is shorted, and can be replaced by an open circuit.

$$(2.2 + 3.72)\{\Omega\} \parallel (4.07\{\Omega\}) = 2.41\{\Omega\}$$

This gives us the following circuit.



$$R_{EQ} = (2.7 + 2.41 + 3.7)\{\Omega\}$$

$$R_{EQ} = 8.81\{\Omega\}$$