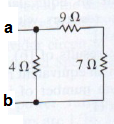
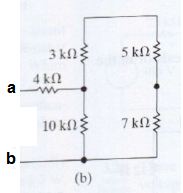
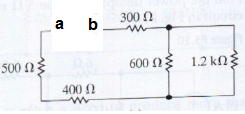
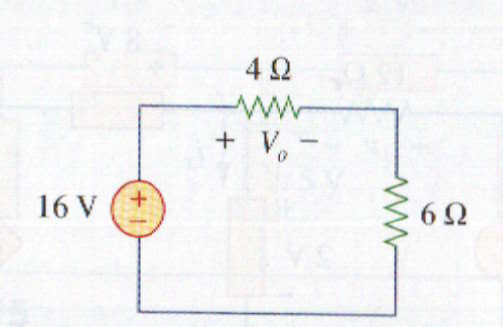
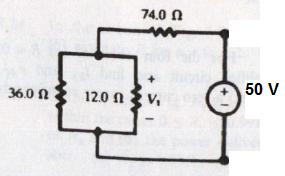
ENGR 12 Assignment 3 Due: next wed

**Part I. Drills -- 1 point each**Find the equivalent resistance measured at terminals a and b. Remember all currents in a series path are the same. All voltages across parallel paths are the same.

1. 2) 3)

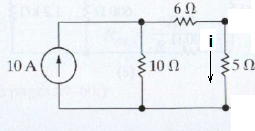
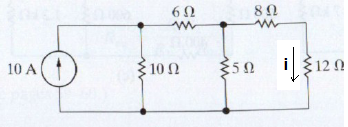
  

1. Use voltage division to find the voltages v0 and v1
2. This is Prob 2.27 in your text b) Note V1 is measured across the 36||12 combination

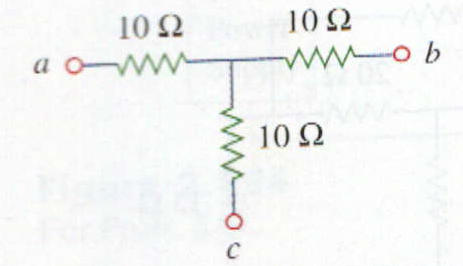
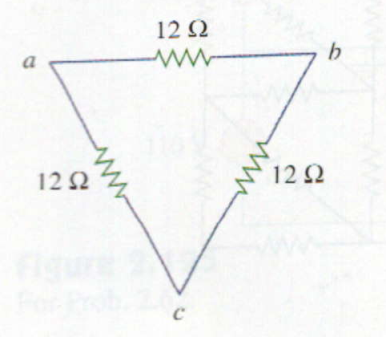
** **

1. Find the current i using current division
   1. i is current thru series 6+5 Ohm branch b. This is two cascaded current dividers

Find Req to right of 10 ohm resistor and do divider A  
 Then divide again at B between the 5 and (8+12) paths

1. Convert the Wye to Delta and the Delta to Wye
   1. this is 2.48a b. this is 2.49a

**Part II. Assisted Problem Solving – 2 pts each**

|  |  |
| --- | --- |
|  | HINTS   1. The wire across the middle is one large node 2. There is one parallel path from top to middle 3. and another parallel path from middle to bottom 4. Find Req for (2) and (3), then use voltage divider to find Vo 5. Find currents in all four resistors and use KCL to find Io |
|  | HINTS   1. Converting Wye to Delta is ONE way to solve this – then deal with the short across top using parallel resistor formula ( using R=0 for the short) 2. A more elegant way is to morph the circuit, collapse the short from (a) to 5 Ohm into one node at top, with 2 parallel 20 Ohms connecting to a series 10 and the whole thing parallel to 5…can you see it? Be careful while morphing not to change the circuit! |

**Part III. Unassisted Problem Solving – 3 points each**

9) Find V in the following circuit  
 