



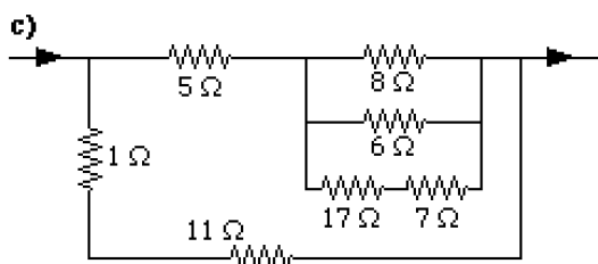
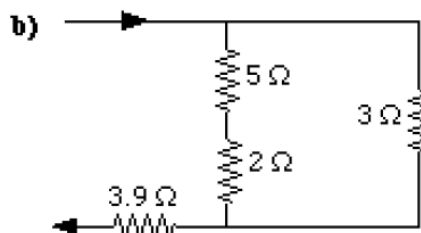
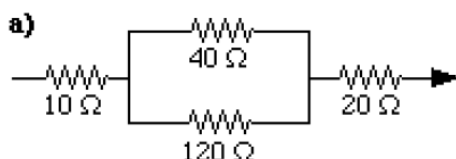
# Circuits Work (Problem Set #1) 2020

Note: you may wish to show your solutions on a separate sheet.

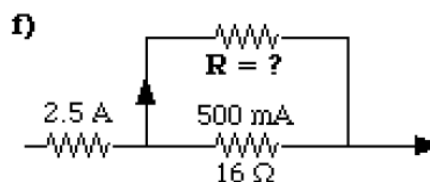
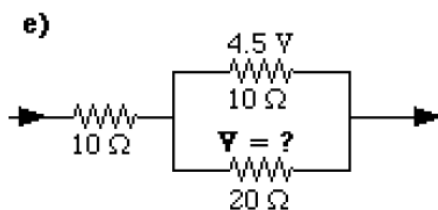
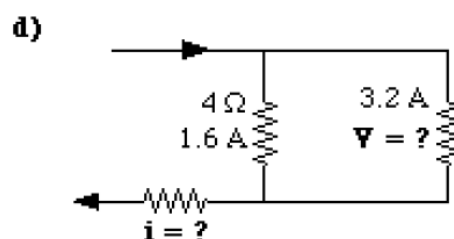
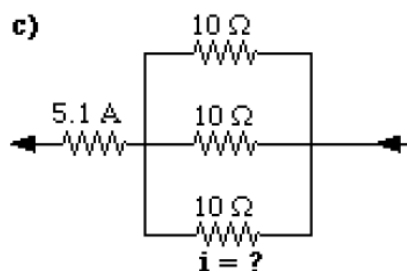
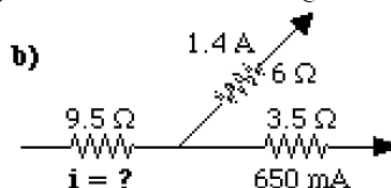
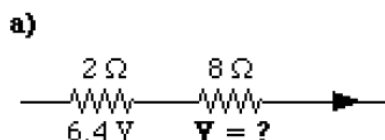
Please use your Circuits Rules Sheet

Any student found entering the problem set without having done their Homework may be refused entry. All Problem Set participants must accept full responsibility for their learning during the duration of the set. Failure to read and understand the **circuit rules sheet** given out by Mr. Walzl may result in injury.

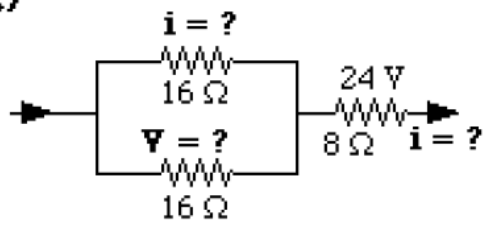
1. Calculate the effective resistance of each of the following branches of a circuit.



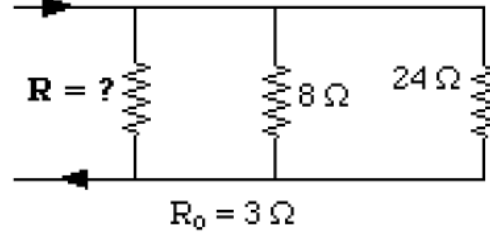
2. Determine the value of the indicated quantity for each of the following circuit branches.



g)



h)



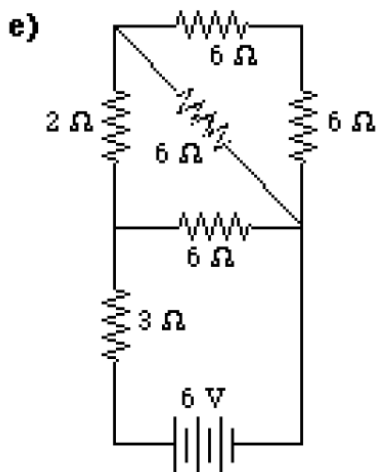
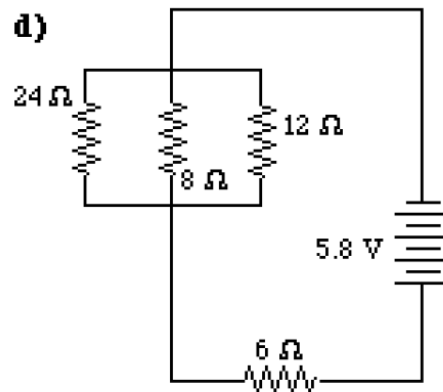
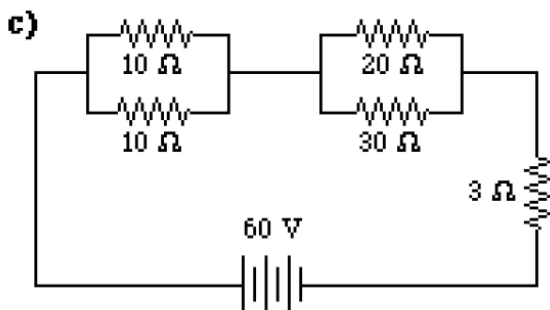
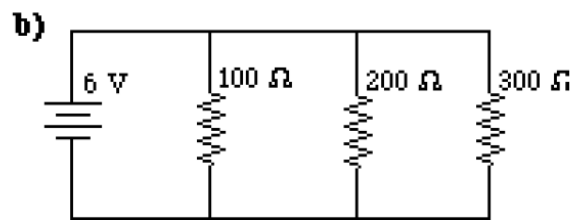
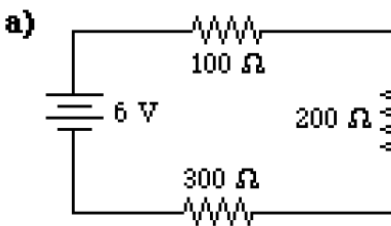
4.0  $\Omega$

A

1. a)  $60\ \Omega$  b)  $6.0\ \Omega$  c)  $4.8\ \Omega$  2. a)  $25.6\text{ V}$  b)  $2.05\text{ A}$  c)  $1.7\text{ A}$  d)  $4.8\text{ A}$ ,  $6.4\text{ V}$  e)  $4.5\text{ V}$  f)  $4.0\ \Omega$  g)  $1.5\text{ A}$ ,  $24\text{ V}$ ,  $3.0\text{ A}$   
 h)  $6\ \Omega$

## More Circuit Rules Problems:

find the **Total resistance** for each circuit below and then find the current that runs through each element and voltage drop across each element. Use a separate piece of paper for your work. **DON'T** do e) (only for bonus)



1. a)  $600 \Omega$ , 0.01A through all elements V, 2 V, 3 V
- b) (6 V each device):  $54.5 \Omega$ , 0.11 A, 0.06 A, 0.03 A, 0.02 A
- c)  $20 \Omega$  & 3 A; left parallel resistors: 1.5 A & 15 V; right parallel resistors: 1.8 A, 1.2 A & 36 V each;  $3 \Omega$  resistor: 9 V & 3.0 A
- d)  $10 \Omega$  & .58 A; resistors in parallel: .096 A, .29 A, .193 A, 2.32 V for each;  $6 \Omega$  resistor: .58 A & 3.48 V
- e)  $6 \Omega$  & 1 A;  $3 \Omega$  resistor: 3V & 1 A; middle resistor: 3 V & 0.5 A;  $2 \Omega$  resistor: 0.5 A & 1 V; diagonal resistor: 2 V & 0.33 A; top resistor & right side resistor: 1 V & 0.17 A each