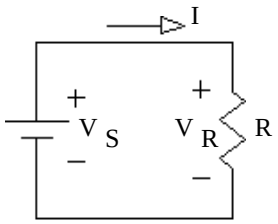
Name: _____ ECE 2210 /00 homework DC2

a5

Note for ALL Homeworks: You may work them out on your own paper, but the grader would appreciate it if showed your work on the provided pdf or printout of the pdf. You **MUST Show your work to get credit. Circle answers.**

1. Ohm's law
   Consider the figure at right
   For each of the cases below, find the missing value.



a) $I := 0.01 \cdot A$ $V_R := 4 \cdot V$ R = ?

b) $I := 50 \cdot mA$ $R := 560 \cdot \Omega$ V_R = ?

c) $V_R := 12 \cdot V$ $R := 1.5 \cdot k\Omega$ I = ?

2. Power and Ohm's law. Same circuit as above. For each of the cases below, find the missing values.

a) $I := 5 \cdot mA$ $R := 2 \cdot k\Omega$ V_R = P_R =

b) $V_R := 25 \cdot V$ $R := 100 \cdot \Omega$ I = P_R =

c) $V_R := 20 \cdot V$ $I := 0.01 \cdot A$ R = P_R =

Ignore the fact that the following items run on AC

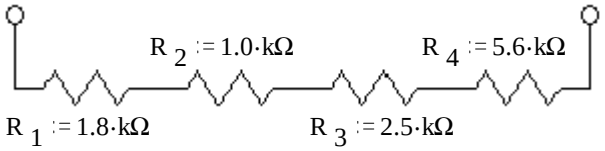
d) $P_R := 900 \cdot W$ $V_R := 120 \cdot V$ I = R =
Toaster

e) $P_R := 1500 \cdot W$ $R := 9.6 \cdot \Omega$ I = V_S =
Hair drier

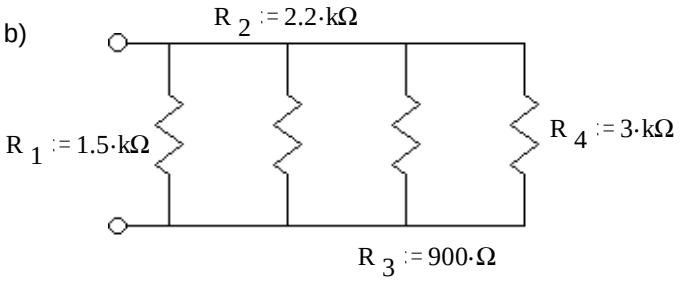
f) $P_R := 2500 \cdot W$ $I := 10.5 \cdot A$ R = V_S =
Electric oven

3. Find the equivalent resistance of each of these networks, i.e. what would an ohmmeter read if hooked to the terminals.

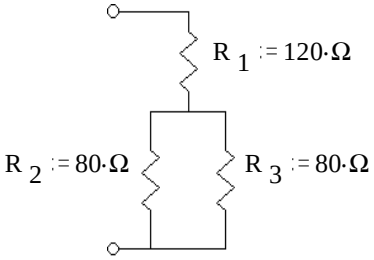
a)



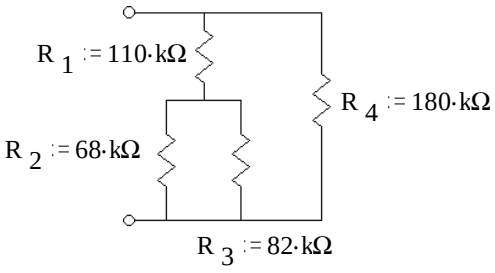
b)



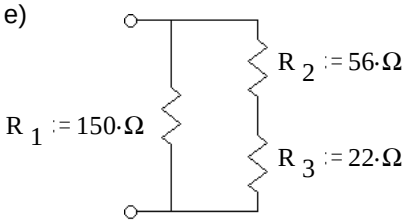
c)



d)



e)



4. Do as much as you can of homework DC3 now, otherwise you will find that homework to be a bit long.

Answers

1. a) $R := 400\cdot\Omega$ b) $V_R := 28\cdot V$ c) $I := 8\cdot mA$
2. a) $V_R := 10\cdot V$ $P_R := 50\cdot mW$ b) $I := 0.25\cdot A$ $P_R := 6.25\cdot W$ c) $R := 2.0\cdot k\Omega$ $P_R := 200\cdot mW$
   d) $I := 7.5\cdot A$ $R := 16\cdot\Omega$ e) $I := 12.5\cdot A$ $V_S := 120\cdot V$ f) $R := 22.7\cdot\Omega$ $V_S := 238\cdot V$
3. a) $R_{eq} := 10.9\cdot k\Omega$ b) $R_{eq} := 390\cdot\Omega$ c) $R_{eq} := 160\cdot\Omega$
   d) $R_{eq} := 81\cdot k\Omega$ e) $R_{eq} := 51.3\cdot\Omega$