

Assignment – 1, Basic Electronics (EE-182) Fall 2016
Department of Computer Science, NUCES-FAST
Due Date for Section A, C, D, E, F, H, R: 7 Sep 2016
Due Date for Section B: 8 Sep 2016

Topics:

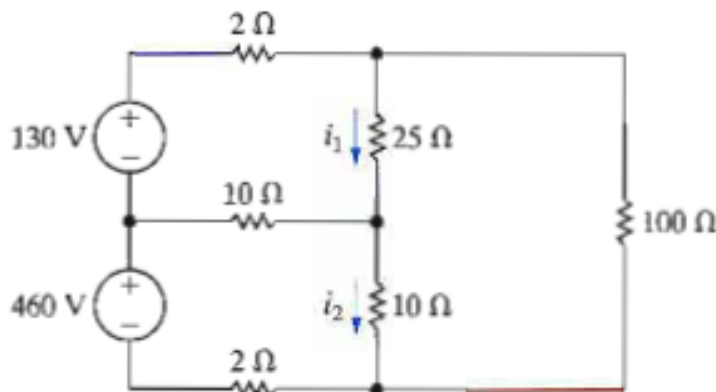
- V, I, Power, Energy
- Ohm Law, Equivalent Resistance.
- Current & Voltage Division
- KCL and KVL
- Series and parallel circuits

Answer: 16.2 KJ

1. One 9 V battery supplies 100 mA to a camping flashlight. How much energy does the battery supply in 5 h?
2. When a car has a dead battery, it can often be started by connecting the battery from another car. The positive terminals are connected together as negatives. The connection is illustrated in below figure. Assume that the current i flowing is measured and found 30A. Which car has the dead battery?

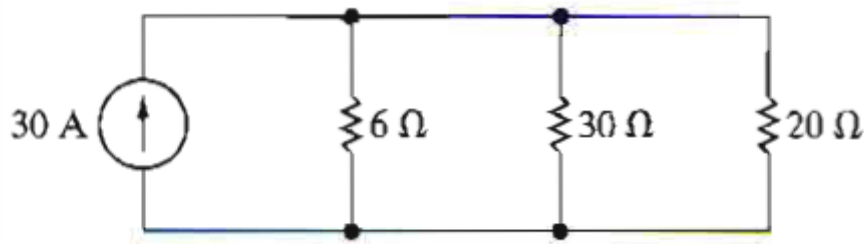


3. If $i_1 = 10\text{A}$, $i_2 = 25\text{A}$.
 - a) Find the power supplied by each voltage source.
 - b) Show that power supplied is equal to power dissipated in the circuit.



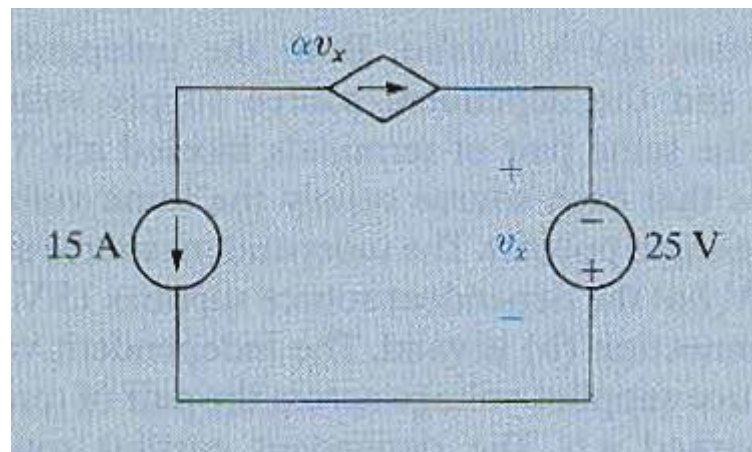
Answer: P= 480W

4. Find the power dissipated in the 30Ω resistor in the circuit.

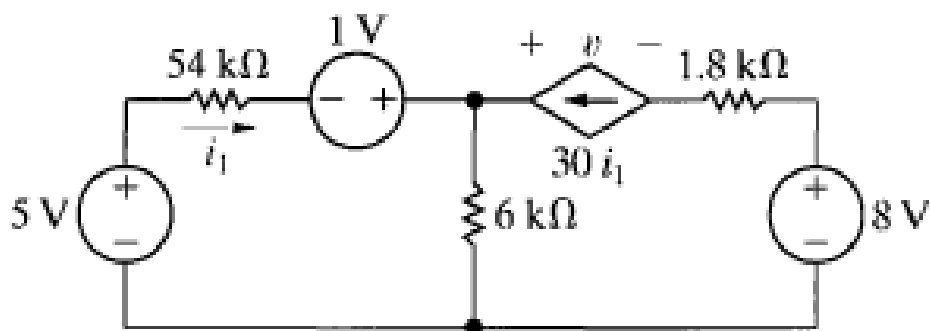


Answer: a) 0.6 A/V, b) 375W absorbed

5. For the circuit shown,
 a) What value of α is required in order for the interconnection to be valid?
 b) For the value of α calculated in part 'a', find the power associated with the 25V source

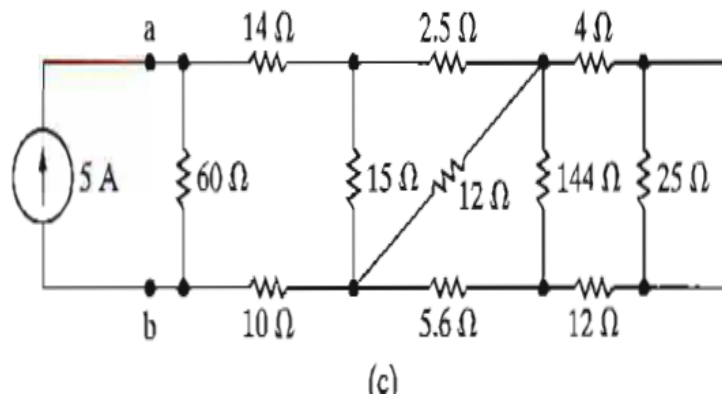
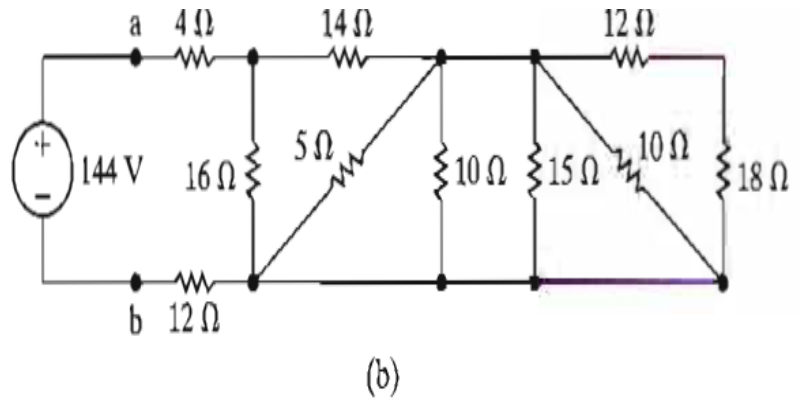
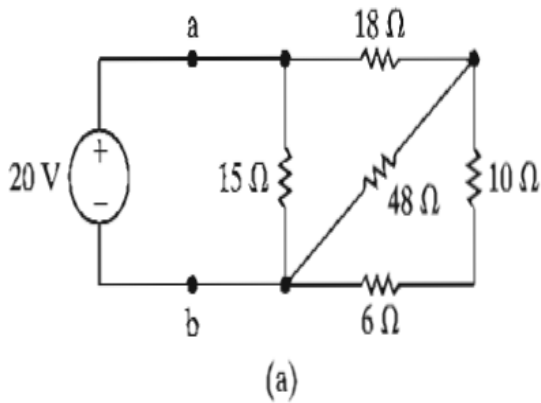


6. For the circuit shown Find
 a) The current in microamperes
 b) The voltage v in volts
 c) The total power generated and
 d) The total power absorbed.

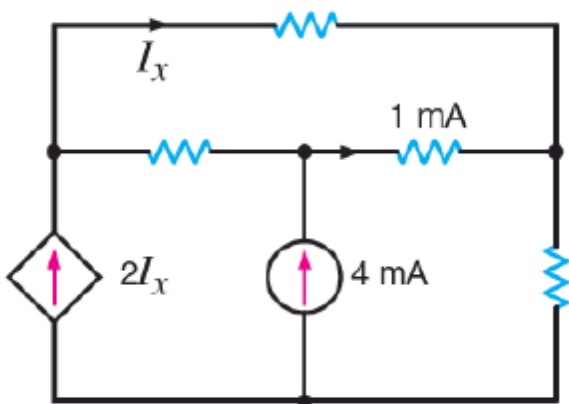


Answer: 1) $a = 10\Omega$, $b = 24\Omega$, $c = 20\Omega$, 2) $a = 40\text{W}$, $b = 864\text{W}$, $c = 500\text{W}$

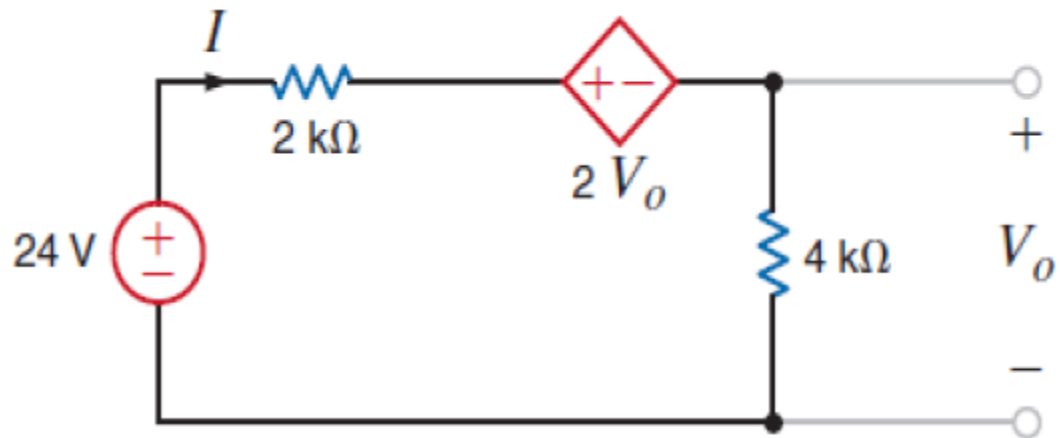
7. 1) In the circuits a, b, c, find the equivalent resistance R_{ab}
 2) For each circuit find the power delivered by the source.



8. Find I_x in the following circuit.



9. Find V_o in the network given below



10. Find V_{bd} in the circuit.

