ET 110/C13 – Electric Circuit Analysis
Homework # 4 – Ohm's law, power, and energy
Due date: 9/21/16 Wednesday
YOU HAVE TO SHOW ALL WORK IN ORDER TO RECEIVE FULL CREDIT

Note: All answer must be in engineering notation rounded off to the hundredth

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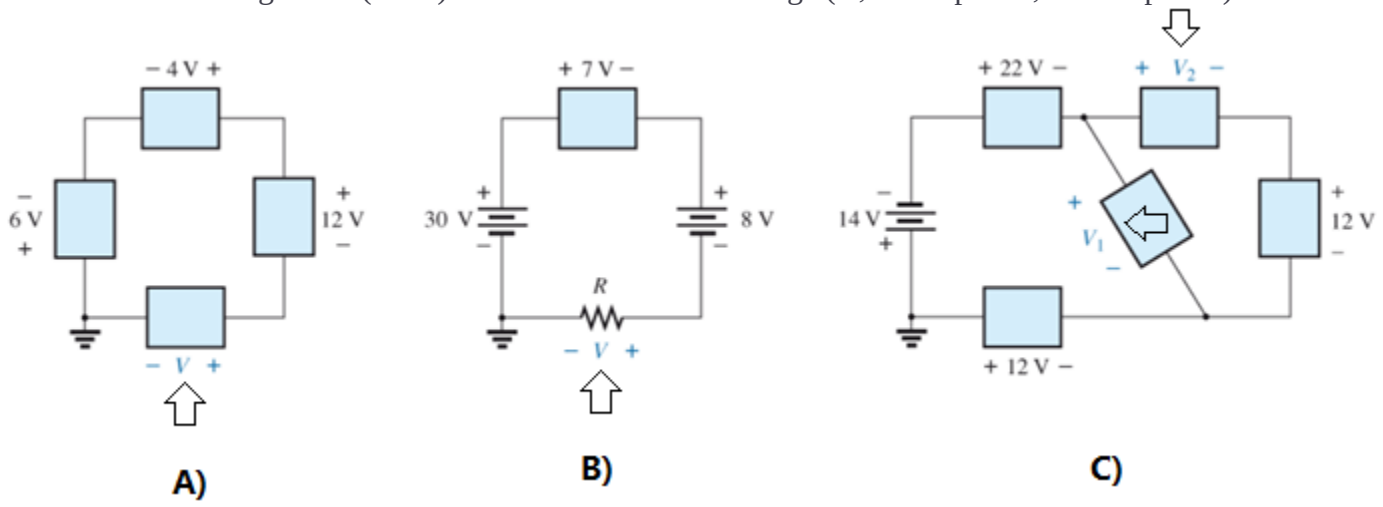
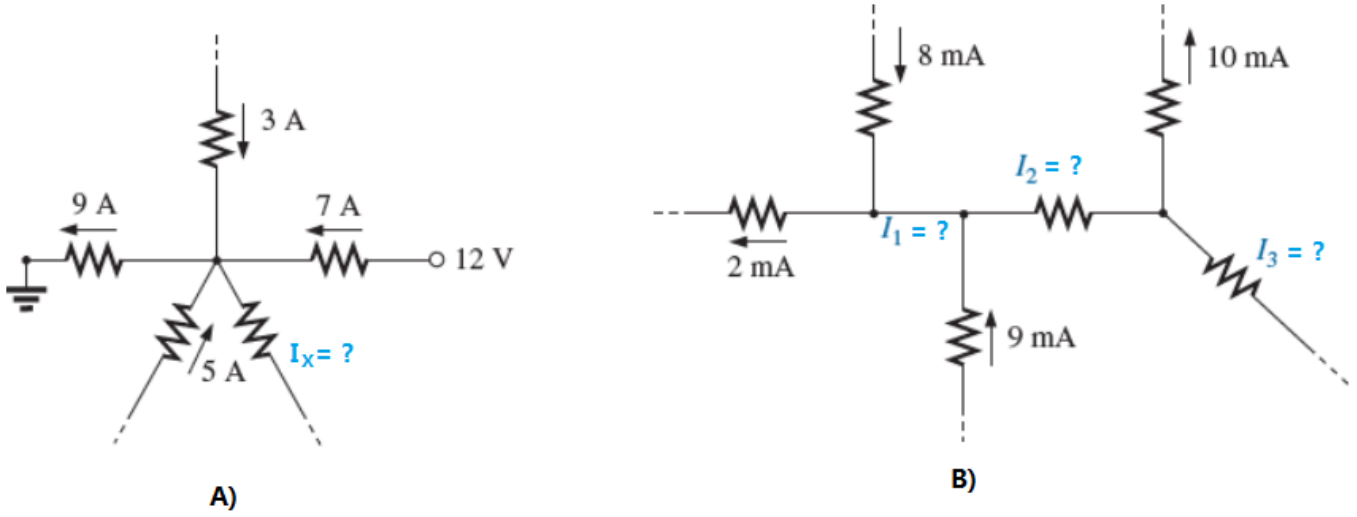
1. What is the power delivered by a 9 V battery if the current drain is 40 mA? (11 points)
2. What is the output power of a motor with an efficiency of 92% and an input current of 5 A at 110V? (12 points)
3. If an efficiency of a motor is 80%, determine the applied input energy if the output energy is 60 J (10 points)
4. What is the total cost of using the following at 12¢/kWh? (20 points)
   - 1600 W air conditioner for 8 h
   - 1200 W hair dryer for 20 min
   - 4800 W clothes dryer for 1 h
   - 900 W coffee maker for 15 min
   - 200 W Play Station 3 for 1.2 h
   - 50 W stereo for 3.5 h
5. Use Kirchhoff's Voltage Law (KVL) to find the unknown voltage (A, B = 8 points, C = 11 points)



A) B) C)

6. Use Kirchhoff's Current Law (KCL) to find the unknown current (A = 8 points, C = 12 points)



A) B)