**Physics 12: Circuit POWER!**

1.

12Ω a. Find the power of each resistor.

b. Find RT.

16Ω

c. Use RT to find PT.

6.0Ω d. Use P1, P2 and P3 to find PT.

e. Compare c. and d.

12V

2. The potential difference across the 12Ω resistor is 6.0V. What is the power delivered by the battery?

5.0Ω 1.0Ω

12Ω

8.0Ω

3. A 120V household circuit contains two 24W bulbs connected in parallel.

a. How much current is drawn with both bulbs on?

b. How much energy (in kWh) is used by the bulbs in 3.0 hours?

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4. Use the circuit to the right to answer the following questions. A

a. With both switches open which bulbs are lit?

b. When switch 1 is closed, and switch 2 is left open,

describe what happens to the brightness of each bulb.

c. When switch 2 is closed, and switch 1 is left open, 1 B 2

describe what happens to the brightness of each bulb relative

to part a.

d. With both switches closed describe the brightness of each

bulb relative to part a. C

5. Each resistor in the circuit below is 4.00Ω. The power dissipated by R2 is 1.00W.

**R2**

**R1**

a. What is the power of R1? d. How much energy is supplied by the battery in 15minutes?

b. What is the voltage of the battery? e. How many electrons leave the battery in 15 minutes?

c. What is the power of the battery?

6. Two identical electric heaters are connected in parallel to constant potential source. Together they dissipate 1800W. How much would the two dissipate if connected in series?

7. An LED lightbulb is rated at 13W when connected to a 120V source. Electricity is priced at 10.29₵ per kilowatt hour. How much does it cost to have 5 of these bulbs, connected in parallel to a 120V source for 5.0 hours?

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