Name _____ Hour _____

Online book: www.connected.mcgraw-hill.com. **redemption code: LWSD-JVW9-W6PO**

Electricity Book Assignment – Chapter 22 p. 598

1. Think of 3 things electricity can do:

2. Define **electric current**:

3. Define **electric circuit**:

4. Define **power** and include the unit it is measured in. (p. 600)

5. Electric Current is represented by the letter _____ and is measured in amperes (amps) which are abbreviated with the letter _____.

6. The first box is the power equation from earlier this year. The second box has the new equation on p. 600. Determine what each variable stands for and its units.

$P = W / \Delta t$	$P = I \Delta V$

P = _____ measured in _____

I = _____ measured in _____

ΔV = _____ measured in volts

7. Define potential difference (ΔV): (go back to p. 578) **Potential difference is also known as Voltage.**

8. Define **resistance**. (p. 604)

9. The **unit for resistance** is _____ and is represented by the Greek letter _____

Ohm's law: $\Delta V = I R$

ΔV = _____ measured in _____

I = _____ measured in _____

R = _____ measured in _____

10. Find the current of the following devices when they are connected across a potential difference (voltage) of 120 V:
    a. Hot plate (R = 48 Ω) b. microwave (R = 20 Ω)

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11. Define parallel connection: (p. 608)

12. Define series connection:

Read 'The kilowatt-hour' on p. 612 and then refer to your (or your friend's) Electric bill.

13. Convert 345 Watts into kilowatts:

14. Electric companies measure electrical energy in the unit _____ which is abbreviated by **kWh.**

15. Define **kilowatt-hour**:

16. How many kWh (kilowatt hours) did your house use in March? _____

Your charge rate = $0.101 per kWh (about 10 cents per kWh)

1. **How much would it cost to run a 100 Watt lightbulb for 24 hours?** ($0.24 or 24 cents)

Step 1: **Change Watts (W) into kilowatts** (kW) (1000 Watts=1kW) **This is your POWER**.
Step 2: Use $P=W/\Delta t$ to **solve for work** (in kWh) (Keep Δt in hours)
Step 3: **Multiply work by price** per kWh ($0.101)

2. **How much would it cost to run a 140 watt PlayStation 4 for 3 hours**? Use same 3 steps from above ($0.042 or 4.2 cents)

3. **How much would it cost to run a 450 watt 50" plasma TV for 3 hours**? Use same 3 steps from above (≈$0.14 or 14 cents)

4. What is your total for 3 hours of game playing? _____