

A-day: Due Wed., Apr 23 (Assigned Mon., Apr 21)
 B-day: Due Thurs., Apr 24 (Assigned Tues., Apr 22)

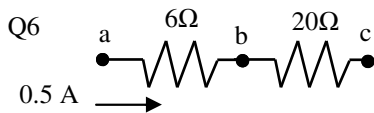
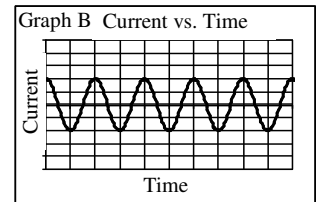
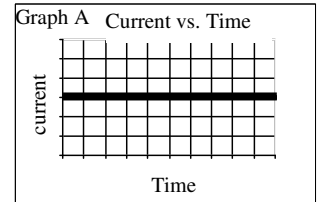
2008 Electricity 9

$$P = V I$$

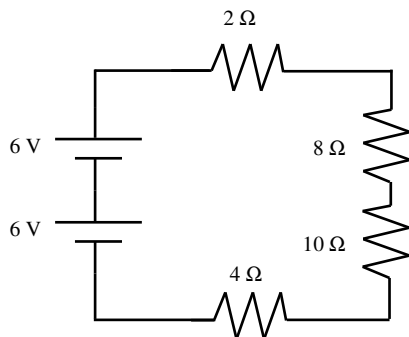
$$P = I^2 R$$

$$P = \frac{V^2}{R}$$

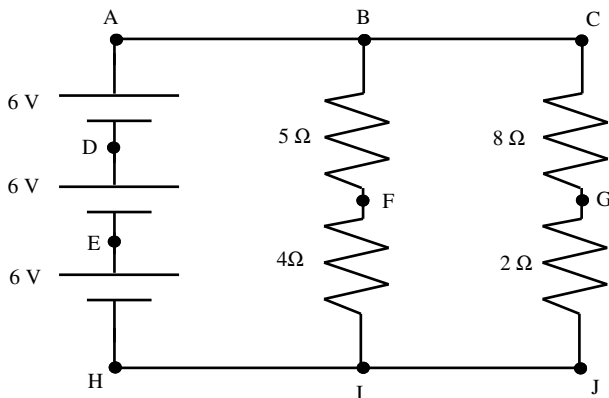
- For each of the following pairs, circle the one with the greatest resistance.
 - A 25 Ω resistor at 5°C or at 25°C?
 - A 5 cm wire or a 5 meter wire?
 - Thick wires or thin wires?
 - Aluminum wires or Copper wires?
- Is a superconductor a good or bad insulator?
- AC or DC Current: (*Read about AC current in your book.*)
 - ___ Current that changes polarity.
 - ___ Current that is constant.
 - ___ What comes from a battery.
 - ___ What comes from the power outlet.
 - ___ Graph A
 - ___ Graph B.
- What is a capacitor?
- Give one use for a capacitor (*not relating to water*).



- In the two resistors at the left, how much current is flowing thru b?
- How much voltage is used by the 6 Ω resistor?
- How much voltage is used by the 20 Ω resistor?



- Use the circuit at the left to answer the following. **Show your work on the diagram.**
 - Calculate the current in the circuit.
 - How much current is flowing thru the top battery?
 - How much voltage is used by the 8 Ω resistor?
 - How much power is used by the 4 Ω resistor?
 - How would the current change if one of the resistors was removed and replaced by a wire?



- Use the circuit at the left to answer the following. **Show your work on the diagram!!!**
 - What is the voltage difference from B to I?
 - How much current is flowing thru G?
 - How much current is flowing thru F?
 - How much current is flowing from B to C?
 - How much current is flowing thru D?
 - How much current is flowing thru A?
 - How much voltage does the 8 Ω resistor use?
 - How much power does the whole circuit use?

REVIEW FOR TEST

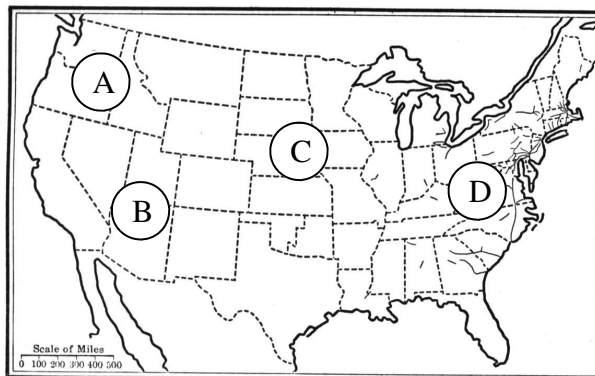
9. (From “*Electric Charge and Electric Force*”) Calculate the force between a $4\mu\text{C}$ and a $-2\mu\text{C}$ charge that are 3mm apart.
10. Find the charge of 3,000 electrons. ($1 e = -1.602 \times 10^{-19} \text{ C}$)

Seniors may stop.

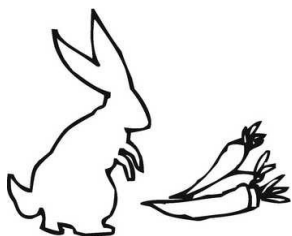
11. When you go to the store, is there more food or more shoppers (those that will eat the food)?
12. So, in any ecosystem, are there more herbivores or carnivores? More herbivores or plants?
13. How many pounds of plants are necessary to produce 5 lbs of herbivore?
(This is why it is better for the environment for humans to be a vegetarian rather than carnivorous. Most of us aren't going to do that, but we can cut back on our meat consumption, which also benefits our cardiovascular system.)
14. When oil tankers usually fill and empty their toxic cargo in bays. Bays are often at the mouths of rivers. What ecologically sensitive ecosystem is threatened by the possibility of oil spills in these places?

15. From the map of the United States identify the most likely biome for each region.

- | | |
|----|----|
| A. | C. |
| B. | D. |



16. In northern regions of Siberia, Canada, and Alaska, global warming is causing the ground to thaw. This has caused building foundations in Inuit villages (Eskimos) to buckle and break due to the ground becoming soft for the first time. What biome is this?
17. This biome helps filter our water supply and protects against flooding.
18. In the winter a house that allows sunlight in uses less energy for heating, but in the summer months shade reduces cooling costs. What kind of trees would give these two benefits? *(The answer is described in one of the biomes, but I am NOT looking for a biome, but a kind of trees.)*



19. Rabbits eat carrots. Right, Doc?
 - A. Is the rabbit an autotroph or a heterotroph?
 - B. Is the carrot a consumer or a producer?
 - C. On the picture draw the direction a food chain arrow should point.
 - D. The arrow show the direction of the flow of _____.
20. Which is more complex: a food chain or a food web?
21. Below draw a food web with at least two food chains. They must interconnect.
(You may use another piece of paper.)