

Class 7



PHY 232
Spring 2002
Prof. S. Billinge

Announcements



- Class web-page:
<http://www.pa.msu.edu/courses/phy232>
- Exam on Thursday



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Exam

1. Exam will be 50 minutes in 1410BPS (usual classroom) from 7:00pm on Thursday (usual class-time)
2. Bring #2 pencil, calculator and student ID
3. The exam is closed book. You are allowed a single 8.5x11 HANDWRITTEN crib-sheet with equations /definitions on it.
4. There will be 11 questions on the test. They will be like the easier homework problems.
5. The test will cover items that appeared in homeworks 1-3. This includes content covered in class through today (Sections 18.1, 18.2 and 18.3 from chapter 18 of the textbook)

Concepts

1. Electro-motive force (EMF)

- A source that maintains a current in a circuit, e.g. battery
- Memory aid: “current pump”

2. Equivalent resistors

- The resistance you would need to use to replace a number of resistors in a circuit with a single resistance and have the same current flowing.



Problem solving

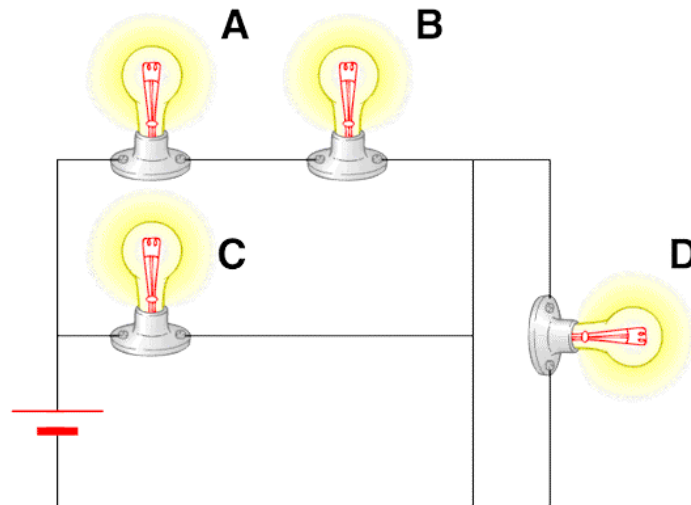
- Strategies for solving circuit problems
 - Understand rules for voltage and charge in circuits
 - Apply $V=IR$ again and again
 - Always try and reduce the number of resistors by using the rules of “equivalent resistors”



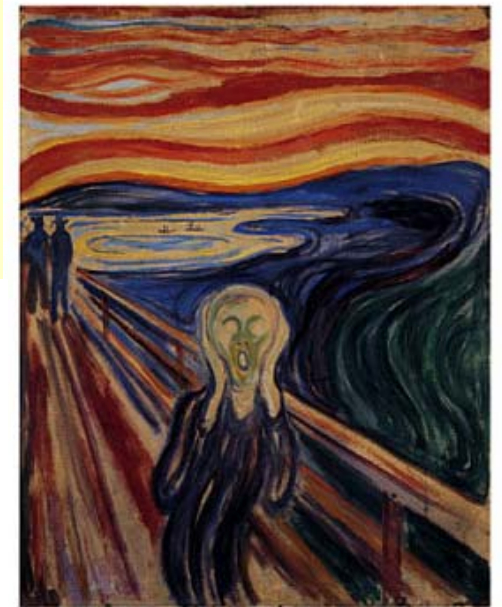
4 identical bulbs, what happens to the brightness of each bulb if:

- “A” breaks (no current in A)?
- C breaks?
- D breaks?

Serway, College Physics, 5/e
Text Figure 18.5



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You charge a capacitor then isolate it from the battery:

1. You can't increase the stored energy because you can't increase the charge
2. You can increase the energy by moving the plates together
3. You can increase the stored energy by moving the plates apart
4. You can increase the energy by inserting a dielectric

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A high capacity capacitor is charged to capacity.
Which of the following is it safe to do?

1. Hold both terminals while sitting in a bath with aromatherapy bath salts
2. Hold the positive terminal while sitting.....
3. Hold both terminals as long as you are wearing rubber boots
4. Hold the positive terminal while wearing rubber boots

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