PHYS-2020: General Physics II
Problem Set 1, Spring 2012

There are 10 problems you are to complete via the web at

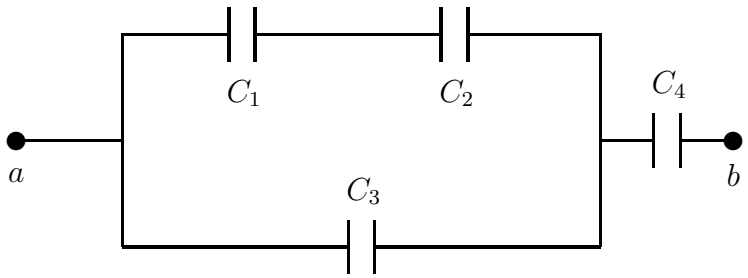
http://capa.etsu.edu/

You will gain access to this set by typing in your CAPA Student Number and CAPA ID which will be supplied to you. These problems will be graded and must be completed by 6:00 p.m. on Friday, February 3, 2012. **Start working on these problems immediately Don't wait until the last day to start them. One never knows when the network will go down, and you will not be able to use this as an excuse for not doing your CAPA problems.** As a matter of fact, there will be no allowed excuses for not doing your CAPA homework.

The following problems will not be graded, but should be done for review. These problems are from your textbook (College Physics, 9th Edition, Serway & Vuille). The solutions are posted on the course web page. **Try to work these problems out by yourself before looking at the solutions I have supplied for you.**

1. Problem 15.9, Page 542.
2. Problem 15.18, Page 543.
3. Problem 15.32, Page 544.
4. Problem 15.45, Page 545.
5. Problem 16.10, Page 583.
6. Problem 16.17, Page 584.
7. Problem 16.30, Page 585.

8. Four capacitors are connected as shown below, where $C_1 = 15.0\ \mu\text{F}$, $C_2 = 3.00\ \mu\text{F}$, $C_3 = 6.00\ \mu\text{F}$, and $C_4 = 20.0\ \mu\text{F}$. (a) Find the equivalent capacitance between points a and b. (b) Calculate the charge on each capacitor if a 15.0-V battery is connected across points a and b.



9. A small sphere that carries a charge q is whirled in a circle at the end of an insulating string. The angular frequency of rotation is ω. What average current does this rotating charge represent?

10. Calculate the diameter of a 2.0-cm length of tungsten filament in a small light bulb if its resistance is $0.050\ \Omega$.

11. Problem 17.27, Page 612.

12. Problem 17.37, Page 613.