

## PHYS-2010: Dr. Luttermoser's General Physics I Course Problem Set 3, Fall 2010

---

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 have been supplied to you. These problems will be graded and must be completed by 6:00 p.m. on Friday, November 12, 2010. **Start working on these problems as soon as possible! 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, 8th 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 8.30, Page 268.
2. Problems 8.31 and 8-32, Page 260 and 261.
3. Problem 8.58, Page 263.
4. Problem 9.19, Page 315.
5. Problem 9.23, Page 315.
6. Problem 9.41, Page 317.
7. Problem 9.45, Page 317.
8. Problem 9.66, Page 319.
9. Problem 9.71, Page 319.
10. Problem 10.13, Page 348.
11. Problem 11.16, Page 380.

12. A beaker of water sits in the sun until it reaches an equilibrium temperature of  $30.0^{\circ}\text{C}$ . The beaker is made of 100 g of aluminum and contains 180 g of water. In an attempt to cool this system, 100 g of ice at  $0^{\circ}\text{C}$  is added to the water. (a) If  $T_f = 0^{\circ}\text{C}$ , determine how much ice remains. (b) Assume you start with 50 g of ice with the same initial setup. What will be the final equilibrium temperature of the system?
13. A window has a glass surface area of  $1.6 \times 10^3 \text{ cm}^2$  and a thickness of 3.0 mm. (a) Find the rate of energy transfer by conduction through the window when the temperature of the inside surface of the glass is  $70^{\circ}\text{F}$  and the outside temperature is  $90^{\circ}\text{F}$ . (b) Repeat for the same inside temperature and an outside temperature of  $0^{\circ}\text{F}$ .
14. Problem 11.49, Page 382.
15. Problem 11.52, Page 383.