

# Problem Set #7

## Physics 436

Friday, 04 March 2022

The following problems come from Schroeder's *An Introduction to Thermal Physics*:

- Problem 3.28 on page 113 (*10 points*)  $\Rightarrow$  If you are still unclear about what air is, and how many degrees of freedom it has, reread page 16.
- Problem 3.31 on page 114 (*10 points*)  $\Rightarrow$  This is a nice empirical problem where you compute some numbers. You also get to use the table on page 404 again.
- Problem 3.32 on page 114 (*10 points*)  $\Rightarrow$  This problem is more subtle than it may at first seem. As you work it, reread pages 20-21 and pages 112-113.
- Problem 4.2 on page 124 (*10 points*)  $\Rightarrow$  After working this problem, you will understand why companies spend so much money on research and development.
- Problem 4.3 on page 124 (*10 points*)  $\Rightarrow$  Environmental impact of a power plant is studied in this problem. For part (c), use Figure 5.11 on page 167 and assume that the water temperature is 25°C when the water is evaporated.

Due date: **Friday, 11 March 2022**