

# University of New Mexico

## Physics 161, Section 001

### Problem Set #4

**Issued:** February 6, 2006

**Due:** February 17, 2006

**Do all of the exercises and problems listed below. Please hand in your problem set at the start of class. Be sure to put your name, course number (Physics 161-001), and BOX number on your homework. Show all your work, write clearly, and be sure to include the units!**

**Exercises:** Young & Freedman 19.1, 19.10, 19.31, 19.36

**Problems:** Young & Freedman 19.55, 19.57, 19.60

**Extra Credit (worth up to 1% of your final grade):**  
*Young and Freedman, Challenge Problem 19.68*

**Beyond Extra Credit:** *If you feel exceptionally enthusiastic and want to understand more about how the non-ideal nature of real gasses, as predicted by the Van der Waals Equation, influences the performance of machines that do work with gasses (engines, refrigerators, etc.), then attempt Challenge Problem 19.69. No additional extra credit will be awarded within this class, but ample extra credit will follow in your professional career!*