

Oberlin College Physics 110, Fall 2011

## Assignment 1

Wednesday, 7 September

*Reading:* By Monday, read the textbook by Halliday, Resnick, and Walker (HRW), chapter 1 (Measurement). Pay particular attention to section 1–4, and to the “sample problems”.

By next Wednesday, read HRW chapter 2 (Motion along a straight line). Read the entire chapter carefully: it is central to all that we’ll learn this semester. Also by Wednesday, read chapter 1 (Introduction) in “Notes for Mechanics and Relativity”.

*Workshops:* Review this week’s workshop material by reading the course notes, sections 4.1 through 4.4 (“Warm up problems” through “Significant figures”).

The Wednesday–Thursday lab workshop for next week it is “Bouncing Ball”. Be sure to read the lab workshop descriptions a day before going to the workshop meeting, and to send your instructor answers to the “warm up questions” in the workshop descriptions through BlackBoard.

*Problems:* Due Wednesday, 14 September.

Note: The “additional problems” are in chapter 3 of the “Notes for Mechanics and Relativity” handed out on the first day of class.

- Additional problem 1: *Weighting light things with a heavy standard*
- Additional problem 2: *Significant figures*
- Additional problem 3: *A new law of nature?*
- Additional problem 5: *A Doll’s House*  
(Warm up question: If the length of every edge of a cube is doubled, what happens to the volume of the cube?)
- Additional problem 15: *How long is a lecture?*
- Additional problem 16: *To see a world in a grain of sand...*
- Additional problem 17: *Threads and sheets*
- Additional problem 18: *Marathon training*

*Extra problem:* (For discussion only — do not turn in.) Use HRW table 1–2, “Prefixes for SI Units”, to express (a)  $10^6$  phones; (b)  $10^{-6}$  phone; (c)  $10^1$  cards; (d)  $10^9$  lows; (e)  $10^{12}$  bulls; (f)  $10^{-1}$  mate; (g)  $10^{-2}$  pede; (h)  $10^{-9}$  Nannette; (i)  $10^{-12}$  boo; (j)  $10^{-18}$  boy; (k)  $2 \times 10^2$  withit; (l)  $2 \times 10^3$  mockingbird.