

Physics 201, Fall 2008

Problem Set 1

Due Wednesday, September 10.

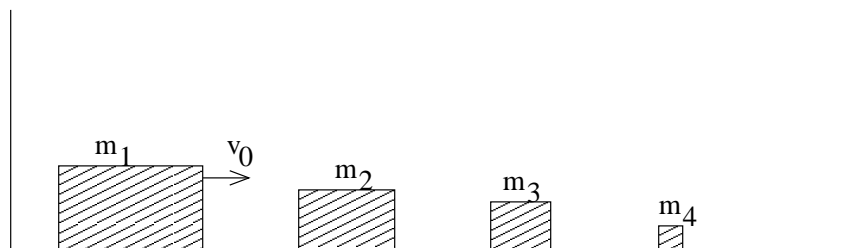
General Problem Set Instructions: You may work together, but you must write up your solutions independently (*i.e.* don't copy anyone else's solutions). You *must* show all of your work. No credit will be given for the final answer unless it is derived or explained, nor will credit be given for solutions to the wrong problems. Problem sets will be available at the course website, <http://physics.wm.edu/~erlich/201F08/> and will be due in class one week after they are handed out.

Problems from Taylor, Zafiratos and Dubson:

1.5, 1.6, 1.10, 1.15, 1.23, 1.24

Additional Problem

Note: This problem (minus the hint) was on the Summer'08 Ph.D. physics qualifying exam.



Consider the situation in the figure above, with $m_1 \gg m_2 \gg m_3 \gg m_4$.

A block of wood with mass m_1 slides with velocity v_0 along a frictionless table towards a series of blocks as shown. What is the velocity of mass m_4 after all the collisions (assuming all collisions are elastic).

Hint: Consider the frame transformation of Problem 1.6.