

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Physics

Physics 8.01L

Fall 2005

Problem Set 4: Newton's Laws and Friction

Due Friday, October 14 at the start of class at 10am.

Please write your name, recitation number, table number, and tutor name on the top right corner of the first page of your homework solutions. Please place your solutions in the Problem Set Solution hand-in bin at the entrance of the classroom.

Reading:

Young & Freedman Chapter 5 (All sections, but especially section 5.3 and 5.4)

Problem 1 Slowing an Orange Box

Young & Freedman Problem 5.26 (Page 196) (Don't be confused by the strange wording. The magnitude of the acceleration is 0.9 m/s^2)

Problem 2 Driving Safely

Young & Freedman Problem 5.28 (Page 196)

Problem 3 Which Way Blocks

Young & Freedman Problem 5.60 (Page 198)

Problem 4 Count All the Friction Forces

Young & Freedman Problem 5.62 (Page 199)

Problem 5 How Hard is Window Washing

Young & Freedman Problem 5.63 (Page 199)

Problem 6 Turning Friction Sideways

Young & Freedman Problem 5.89 (Page 202)

Problem 7 (Optional Challenge) Losing Cargo

Young & Freedman Problem 5.80 (Page 201) (Hint: Think carefully about coordinate systems and forces on objects.)