Physics 131-01—Physics I: Mechanics
Homework Assignment #1
Due Friday, January 30, 2026, 8:25 am

This assignment has 2 basic parts: submit the Mastering Physics on-line "HW #1" assignment, and submit the pencil-and-paper problem below. Please contact me promptly if you have any questions or difficulties.

1 Mastering Physics

1.1 Enroll in Mastering Physics.

Start on the Moodle page for this course, and click on the `Course Materials` link to get started with Mastering Physics. More details about purchasing the text are available from the *Textbook Information* link on our Moodle page.

1.2 Do the on-line assignment "HW #01."

The first part of this assignment is intended to help introduce you to the system, including the ways to enter mathematical expressions. It is worthwhile to go through it. The first four problems are for practice (*i.e.* they don't count) but you should try them. You will get more out of the system and ultimately save yourself time and avoid frustration if you invest a little time now.

The remaining problems are the graded physics problems for this week. They count, so don't skip them.

2 Pencil-and-Paper Problems

2.1 Do the Pencil-and-Paper problem.

Ch 1: Problem 1.72 (30 pts.) Note that this is from the "Problems" section at the end of the chapter, not the not "Questions" section.

- Problems will be due at the *beginning* of class. **Late homework will normally not be accepted**.
- For written homework, I expect your work to be clearly organized and easy to follow. You should include not just numbers and calculations, but also include some text to explain *what* you are doing and *why*. This can often be quite brief, but it is *your* responsibility to make your reasoning clear; it is not the reader's responsibility to try to figure out what you meant. Homework that is incomplete or difficult to understand will not get full credit.

1. Be sure to include your name on each page.
2. Each problem should be clearly labeled. A common convention is to number problems with chapter and problem number, so that something like "2.27" refers to Chapter 2, problem 27. (Note too that this is from the "Problems" section at the end of the chapter, not the not "Questions" section.)
3. For most problems, you should include a figure with clear labels. This week in particular, a clearly-labeled sketch is very useful.
4. Show your work clearly, and include all non-trivial steps. Use words to explain what you are doing and why. This can often be very brief, something like "Use Newton's second law," or "Use conservation of energy since all the forces involved are conservative."
5. Allow plenty of space.
6. Put a $\boxed{\text{box}}$ around your final solution, including correct units.

These guidelines are intended to help you present your work effectively. The problem-solving approach discussed in the text (see pg. 4) goes into more detail, but remember that the goal is to convey your solution in a convincing way to the reader.

- **Illegible papers will not be accepted**. If I have difficulty reading or understanding your work, I may return it to you ungraded for re-submission. You may resubmit a legible version (along with the original) by the next class meeting, but that version must not have any new content—it must simply be a legible version of the original.
- Please look at the homework problems ahead of time and ask questions about them either in or out of class. I am happy to give whatever help you need, but it is important that you eventually learn to do these problems on your own—after all, that's what you will have to do on the tests.

3 Grading

The text rates problem difficulties with dots; One, two, and three-dot problems will typically be assigned 10, 20, and 30 points respectively. Your total score for each week will be the sum of the on-line and pencil-and-paper scores divided by the total number of possible points. For your overall homework grade, each week's assignment will be weighted equally. The lowest week will be dropped.

3.1 Significant Figures

Interpretation of any physical measurement or prediction involves understanding the underlying uncertainties. Unfortunately, a proper handling of propagating uncertainties in

calculations would get quite involved for this course. In the lab, you will spend a good deal of time and effort thinking about and accounting for uncertainties in your results. In the lecture portion of the class, however, we will adopt a simpler approach.

Most problems will require numerical answers. You should normally aim for at least 1% accuracy. Typically, this means keeping 4 or 5 digits in intermediate calculations (or just leaving the intermediate result in your calculator memory) and 3 digits in your final answer. MasteringPhysics will sometimes tell you to give your final answer to 2 digits. You may usually ignore that and give 3 digits. If you need to use an answer in a later part of a problem, you should definitely use the full-precision answer, not one rounded off to 2 digits. Again, your goal is to get the right answer to at least 1% accuracy. Excessive round-off can sometimes make a big difference.

4 Academic Honesty

If you get bogged down with any of the problems, do not hesitate to discuss them with your instructor or with a fellow student. However, if you discuss a problem with *anyone* (besides your instructor) you should acknowledge that collaboration. Please see the Academic Honesty policy for more information about appropriate and inappropriate collaboration.