



General Instructions for Using these Problems and Video Solutions

Download or print the PDF files that contain the problems. Try solving a problem on your own. If you need help, watch the corresponding video solution. You can fast forward, pause, rewind and watch something again. When you get the hint you needed, stop the video and try to finish the problem on your own.

The video is intended to be a model for solving physics problems. If you are struggling with a certain concept and need a mini-lecture on that topic, follow the link for additional resources.

Many students say, "I could do the problems in the book, but I can't do them on the exam." There are several reasons for this.

First, book problems often hold your hand and walk you through the solution. For example, they may have a part (a) that asks you to find the distance a projectile travels in the horizontal direction, a part (b) that asks you to find the time it took to go that distance, and a part (c) that asks for the height at that time. The same problem on an exam will just have one part, find the final height. The instructor is testing to see if you know the steps to get the answer. These book problems are ok to get you the idea of solving multi step problems. But make sure you graduate to the harder "exam" style problems before you go into the exam.

Second, students often get clues as to how to solve the problem based on what chapter the problem comes from (all the problems in this chapter have to do with energy and work, all the problems in the next chapter have to do with momentum). But, on the exam the problems are not put into nice categories for you. For example, you need to know if you should use energy or momentum. I suggest photocopying the problems from the book, cutting them out, and picking the problems randomly, so you don't know which chapter they came from.

Third, studying for an exam is just like preparing to compete in a big sporting event. You start out doing drills and as the big game gets closer your practice becomes more and more like an actual game. So, start studying with your books open and friends close by to discuss the

problems. But end up in a quiet room with only what is allowed on the exam (calculator and a note card, or whatever your instructor allows).

And, as my dad always used to say, “Physics is learned at the end of a pencil.” Get out that scratch paper and work problems.

Many of these problems are “context rich problems.” The idea is to make the problems a little more “real world” than what you typically find in the back of the chapter. First, these problems put you into the situation. Physics is all around us; let’s take advantage of that to make the problems we solve seem a bit more relevant. Second, the problems include extra information and, on occasion, are missing some information. Just like the real world, you need to decide what information is important for solving the problem. Third, there is no question specifically stated. Find everything you can. These are numerical problems, so make sure you solve for something and get a number. You will catch on once you see one or two.