

## Tips for Helping Students in the PSR

### A General Overview

As TAs in the PSR, we have the opportunity to help students build their problem solving skills. Here are some general tips for achieving this goal:

It is important that students attempt to solve problems prior to receiving aid. If a student has reached a sticking point in a problem, it is often more instructive to ask a probing question rather than provide a complete answer. With just a little nudge in the right direction, students can often finish a problem or at least come closer to a solution. The more a student is *making progress independently*, the better.

Being friendly and encouraging is important. Never use sarcasm in the PSR! The PSR is meant to be a positive environment in which every student can feel comfortable asking even the most basic questions. Any sort of negativity, regardless of how humorous it may be to you, can easily turn students away. Remember that it can be difficult or embarrassing to ask questions even though they are an integral part of the learning process.

### Some Typical Situations

- Students who simply want answers:
  - When TAs provide a quick solution to a problem, the student misses out on the learning process. Encourage the student to come up with their own thoughts and ideas...even though you may have to prod them a bit to keep them moving on the right track.
  - Note that it is in a student's best interest to solve the problem by his or herself. Remember, you will not be able to help that student when exam time comes.
  - By asking well posed questions, you not only keep a student thinking in the right direction but also model good problem solving techniques. Student self-sufficiency is always a goal in this form of the "Socratic method."
- Students who have become frustrated with a problem:
  - Be understanding and empathetic. If a student understands that we have all been in their shoes, they may find it easier to step back and reevaluate the task at hand in a better state of mind.
  - Emphasize problem solving. Sometimes a problem might seem overwhelming so ask a student to identify the situation's main concepts. By starting with first principles, they may find it easier to work through a problem.
  - As always, ask plenty of leading questions.
- You do not know how to solve a student's problem:
  - Be up front with the student! By admitting your knowledge gap you acknowledge the difficulty of the subject. Since they now longer feel alone in their confusion, this can often be a source of encouragement for the student.
  - Ask the student to go over with you the key concepts associated with the problem. In addition to helping the student layout the problem, this may jog your memory of some long forgotten realm of physics. Feel free to ask the student if you can look at their book to review the material.
  - Ask the other PSR TAs to help. There are usually three TAs on duty at any given time so take the opportunity to work as a team. If a TA from the student's course is on duty, refer the student to them.
  - Remember the PSR priorities regarding questions from upper division courses.
- Groups of students with the same question
  - Although it is often best for a student to seek help individually, you will undoubtedly encounter several students who have the same question. In this setting, encourage the students to work together to solve the problem. Ask questions to get the group thinking.
  - It is easy to let this situation be an excuse to simply provide answers. Instead, continue to encourage student problem solving skills as discussed above.