

**How to do homework problems**

**Don't wait until the last day.** Begin homework assignments several days before they are due.

**Get help if you need it.** It is frustrating to be stuck and alone for a long time. You are encouraged to cooperate with other students. Should your study group remain unable to do the assignments, ask your help-session instructors for pointers.

**Communicate effectively in writing.** It is not only good practice to write solutions up in a clearly written and well organized way, but also a prerequisite for full credit.

**Communicate effectively in speaking.** Express your ideas about how solve a physics problem as concisely as you can. Your homework study group is a great place for practice: in discussing problems be alert to your study group's responses. Were you understood correctly? Ask for feedback and then fine tune the way you present problems and solutions.

**What's going on here?** Sketch the situation - make the situation real for yourself. Identify desired quantities, with units. "*I want to find a distance, in meters.*" List the quantities you know, with units. If you can't do a problem, try to write down why you are stuck.

**What's my strategy?** What concepts apply to this situation? Briefly state your strategy in words and sentences. (Pretend you are explaining to another student.)

**What equation or equations implement this strategy?** Write down the equation(s) you will use, in symbols before you plug in numbers.

**Solve algebraically for the desired quantity.** Get the quantity you want on the left of the equals sign, and everything else on the right.

**Don't skip steps!** Skipping steps makes your work hard to follow, often leads to mistakes, and may make you loose credit.

**Always do the arithmetic with units.** Substitute numbers with units in equations, for example:

$$5.0 \text{ m/s } 2.0 \text{ s} = 10 \text{ m}$$

Keep units throughout your calculation until the end. It's a useful check.

**Write down the answer, with units.** In case you had to find a distance and state you final answer as "*10*", it is not clear whether you mean "*10 km*", "*10 mi*", or something else.

**Does the answer make sense?** Is it ridiculously small or absurdly large? Does it contradict your intuition? Did the units come out right? Be your own devil's advocate.

**The grading of homework and exam assignments** will follow the spirit of these suggestions. You can get partial credit for a partially incorrect solution. But you won't get full credit, even if your final answer is correct, if your work is incomplete. You should include a sketch of the situation, state what you are looking for and what you know, indicate a strategy in words, and show clearly how your answer (with units) was obtained.