

Tips/Guidelines For Homework, Quizzes and Tests

General

- Always staple your homework if you have multiple pages.
- Remove fringes from paper edges – not doing so makes it difficult to organize stacks. If your paper is not perforated, consider purchasing paper that is or buy loose leaf paper.
- Write in pencil. Sometimes you need to erase things when working a problem, and you can't erase pen. If you choose to use pen, you should recopy your work if your paper is covered in scratched-out work.
- USE LINED PAPER.
- TURN IN YOUR WORK ON TIME.

Organization/Neatness

- Always show work if something is not immediately obvious from what you have already shown or are given.
- If some step doesn't have a mathematical motivation, write a *short* (1 or 2 sentence) explanation for why you are making the conclusions that you are.
- A concise mathematical statement is preferable to a written explanation.
 - For example, if you want to say, "The sum of the forces are equal to zero, so the magnitude of the gravitational force is equal to the magnitude of the normal force," you could simply write the following line:

$$\sum \vec{F} = \vec{0} \Rightarrow F_N = F_g$$

- Your work should start on a given line and go RIGHT AND DOWN. This is the way that reading flows, and so it should be the way that your work flows.
- Do not place multiple calculations on a single line. You may, however, show multiple algebraic manipulations of the same quantity (such as substituting, dividing etc.) on one line, or state multiple equalities and then conclude something. For example:

$$|\vec{F}| = F = mg = \left| \frac{d\vec{p}}{dt} \right| = \left| \frac{d\hat{p}}{dt} p + \frac{dp}{dt} \hat{p} \right| ; \frac{dp}{dt} = 0 \text{ (uniform circular motion)}$$

$$\Rightarrow mg = \left| \frac{d\hat{p}}{dt} \right| p = \omega p = \frac{mv^2}{r}$$

$$\Rightarrow \boxed{v = \sqrt{gr}}$$

- An extension of the above: multiple problems should be separated such that a given problem starts BELOW a previous problem. If you choose to do different problems side

by side, there should be a CLEAR boundary that goes straight up and down. Don't box off a little portion of a sheet for one problem – just start it on a new line.

- Different problems should be separated by a single blank line to keep them delineated.
- Homework is not a contest to see how little space you can use. Please use as much space *as is necessary* (do not go overboard out of spite) for your work to be clear and legible.
- If a problem has lettered parts, SO SHOULD YOUR SOLUTION.
- ALWAYS BOX YOUR ANSWERS. Your boxed answer should be on the bottom-most line, and no work should come after it. You are supposed to CONCLUDE a derivation with the appropriate solution to the problem.
- Write neatly – if the grader cannot read something, he or she will only try so hard to figure out what you wrote. If it takes too long to read because you couldn't take the time to write in a clear way, the grader may simply assume that it's wrong.

Mathematics

- Do as much algebraic manipulation as you can. If you're given numbers without corresponding symbols, define some symbols for convenient use. Plugging in numbers immediately causes you to lose all information about what those numbers actually mean when you get to the end of your calculations.
- Write units WHERE NECESSARY. This goes somewhat with the above statement: if you're using algebraic quantities that already have units, DO NOT WRITE UNITS AFTER THEM. For example, do not write: $a = g \frac{m}{s^2}$. The beauty of algebraic manipulation is that you DON'T have to keep track of the units as you go along. You may simply do your unit manipulation at the end when you have your final expression.
- VECTORS DO NOT EQUAL SCALARS. If you write a force VECTOR, I will expect to see it set equal to something that is a magnitude with a unit vector or something broken up into components each with their appropriate unit vectors.
- Writing the letter of a vector quantity implies the magnitude of that vector quantity, not the actual vector itself. This is a generally accepted notation in physics.
- Please DO NOT use the following notation for vectors: $\vec{A} = \langle A_x, A_y, A_z \rangle$. While it isn't incorrect, it can make integrals and other mathematical manipulations cumbersome. Please use 'hat' notation: $\vec{A} = A_x \hat{x} + A_y \hat{y} + A_z \hat{z}$. You may use \hat{i}, \hat{j} and \hat{k} in place of \hat{x}, \hat{y} and \hat{z} if you are consistent.

Remember that written work that you submit for grading is supposed to demonstrate not only that you can get the correct answer, but that you can do so in a correct manner. If you are sloppy or do not convincingly show where your answers come from, then you have not done that effectively, and cannot expect to receive full credit. You can make it easier on your graders (and, by extension, yourself) by following the above recommendations.

As a general summary, your work should be: Clear; Consistent; Concise. In that order.