Pre-Calculus Pre-AP – Guidelines for Challenge Problems

Purpose: The purpose of Challenge Problems is to give you some experience using the mathematics that you have learned in different settings. Since outside of math class it is rarely obvious what mathematics should be applied to a specific situation, this should be considered to be an essential skill, especially for Pre-AP students.

None of the assigned Challenge Problems will require use of mathematics that you have not yet learned. Solving these problems, then, is primarily a matter of understanding how to approach them and deciding which concepts to apply when. These determinations need to be made individually by each student. Having someone else “get you started” defeats the primary purpose of these exercises.

In light of the above points, I ask that you conform to the following guidelines when undertaking Challenge Problems:

I. Do the work with a minimum of outside assistance.
   A. Do not use the Internet or outside textbooks. They simply are not necessary. Everything that is required to solve these problems is within your existing skill set.
   B. Do not consult with other teachers, tutors, parents, former students of mine, or anyone else who is not currently taking this class from me.
   C. It is acceptable, but not necessary, to consult with ONE other current Pre-Calculus Pre-AP student PROVIDED THAT that student has NOT yet worked the problem. That is, you may collaborate with one other student, but you may not try to duplicate the work of another student.
   D. Based on IC above, if you have already worked the Challenge Problem and another student requests your help, honesty requires you to decline to assist that student.
   E. When you submit your solution, you are to write at the top of the page the name of the ONE (or less) current student of mine with whom you collaborated.

II. Present a written solution that is neat and thorough yet concise.
   A. Do not just submit a page filled with symbols and numbers. Give a brief written description of what you are doing and why. All solutions should contain sentences as well as mathematical statements.
   B. Please do not get carried away with item IIA) above (notice my use of the word “concise.”) The best solutions are often the briefest ones that address all questions raised in the problem. “More” does not necessarily mean “better.”

Clearly, I have little control over the guidelines in item I above. To a certain extent, I have to depend on your honesty here. Let me say for the record that I would much rather see a partial solution of your own creation accompanied by a brief statement explaining why the solution is incomplete rather than a more complete solution that was copied from someone else.

Some of these problems may seem somewhat daunting, but rather than view them as chores, I hope that you come to view them as opportunities to succeed at something that is challenging. You can complete the Sunday crossword puzzle if you simply look at the solution and copy all the letters into the correct squares, but if you do so, what have you accomplished? On the other hand, if you fill in what you can on your own, thinking about it throughout the day and coming back and filling in more when you have new insights, you can take a measure of satisfaction from the portion that you are able to complete by yourself.

I do understand that there is more to life than working crossword puzzles and solving math problems, but hopefully you see my point. The sense of satisfaction derived from an accomplishment is directly proportional to its difficulty. As a student in this class, you are capable of significant accomplishments. However, you will never develop the skills necessary to realize these accomplishments unless you develop the patience and the perseverance necessary to see them through. It is my hope that these problems will help you do just that.