Advanced Math (Pre-Calculus/Geometry)
Syllabus as of 2007-09-18

Tuesdays 8:45–9:30 a.m., Room B02
Grade Level: 10 – 12 (Pre-Requisite: Algebra II)

Teacher: Mr. David A. Wheeler 703 – 250 - 7047 dwheeler at dwheeler.com ("math" in subject)

This math course will cover mathematical concepts beyond Algebra II so students will be ready for Calculus. Topics will include exponentials & logarithms, complex numbers, equations & inequalities (inc. systems of equations & inequalities), functions, lines (inc. slopes), polynomials (inc. the quadratic equation), geometry (inc. angles, circles, polygons, conics, areas, and volume), basic matrix operations, trigonometry, word problems, some basics of statistics and probability, proofs, and so on.

Each class time will be spent going over the important and harder-to-understand concepts assigned for that week (4 lessons each week), explaining them and working through examples in class. Students will also be able to ask questions about anything related to the past or current week, so that problem areas can be addressed. We'll skip lessons 1-8 and test 1, which should be simply review. Students are highly encouraged to start math two weeks before class, so that they can go through lessons 1-8 and possibly use test 1 as a practice test. The first class will begin by covering lessons 9-12; on the second class, please turn in your first weekly test (test #2), which won't be counted but will be good practice. **Students**: **Please do lesson 9 before the first day of class.**

Expected of Students: Students, you will be expected to spend four to six hours a week, outside of class, reading and working problems in the text. You will be expected to complete four lessons and a test each week (typically this would mean completing a lesson each day on Monday through Thursday, with a test on Friday). The test will cover the previous week, so you'll have a chance to ask questions in class before the test. To complete a lesson, read the material and then work the problems; it is recommended that you do *all* the problems each day. If that is occasionally not possible, at least do half of the problems (e.g., all odd or all even). John H. Saxon, the author, has designed this course so it can be self-taught; the class is to *aid* and not to *replace* your self-study. You will need to stay on the schedule of the class, take tests at home (on time!) and turn in your weekly tests at the following class. The tests are closed-book and should take about an hour, but you can take up to three hours if you need it. No separate mid-term or final is planned.

Expected of Parents: Parents, you will be expected to ensure that your students are spending the necessary amount of time reading the text, working the problems, and staying on schedule. This class moves at a somewhat rapid pace, and it is imperative that all students keep up with the schedule. Chapter tests will be administered and initially graded by the parent. It will then be examined by the teacher to give partial credit in a fair way, and the final grade computed. You will need to facilitate getting the completed tests to the teacher on the class days. Your student may have questions during the week. You will need to either help them or encourage them to get help from the teacher (email welcome!) or a fellow classmate. Some students have questions but do not take advantage of the class time to ask their questions; please encourage your student to ask questions in class and get help when they are confused. Call or email the teacher, if you need to - that's why he's here!

Grading and Tests: The final grade will be calculated by dropping the worst 4 weekly tests and then averaging the remainder. Lessons 1-8 will not be covered in class, so "test 1" (covering lessons 1-4) will not be used. "Test 2" will be used as a practice test, and graded "for practice", but not counted at all. No midterm or final is planned.

Required Curriculum: "Advanced Mathematics: An Incremental Approach" by John H. Saxon, 2nd edition (1996), along with its "Solutions Manual". Parents must also acquire the Test Forms and Home Study Packet. Other materials are available that may be useful for some students, but aren't required, such as the DIVE CDs.

As noted above, the first class will cover lessons 9-12; it will also briefly cover what is mathematics, and why study mathematics. We will then cover 4 lessons per week for the entire book (through lesson 125, though we may re-evaluate the pace after starting). The last classes will provide a very brief introduction to calculus (limits, differentiation, and integration of polynomials), so that those who go on to calculus will be better prepared.

Assistance: I welcome emails from students or their parents asking for help! Please send them to dwheeler at dwheeler.com. Please include "math" somewhere in the subject line, so that I'll know that it's not a spam message.