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Course: IB Further Math HL
Book: Pearson Baccalaureate Higher Level Mathematics

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I want to take this opportunity to inform you of what you will be doing in this class. The purpose of high school math is to prepare students to use math in a business or industrial setting and develop problem solving skills. We will hit the topic of problem solving hard because it is important to think and apply what is learned to real world situations.

Materials - You are expected to have a pencil, textbook, a calculator, a spiral notebook, and a folder in class every day. Your spiral notebook should be very large and dedicated exclusively to math. It is expected that your book will be covered. Students must have a graphing calculator such as a TI-83, TI-84, or TI-86, or TI-89 for use in this class. Much of the course is impossible without the use of a graphing calculator and the AP exam requires the use of a graphing calculator on $\frac{1}{2}$ of the exam. If you come to class without your materials and you need to go to your locker, it will count as a tardy.

Hall Passes - I will be conducting this class like a college course and treating you like adults. Adults do not ask to go to the bathroom. If you need to go to the bathroom, grab the hall pass and go. Please choose an appropriate time to do this so that it does not interrupt instruction and that you do not miss something important. Please self-monitor appropriately or else I will have to reconsider whether you should be treated like an adult.

Expectations

- We will show respect for people, their ideas, and their property
- We will work hard to ensure our own growth and to assist the growth of others
- We will persist, even when things are difficult and uncertain
- We will accept responsibility for the quality of our work and for our behaviors and actions

Rules

1. Follow directions
2. Be in your seat with your materials and ready to begin class when the bell rings
3. One person talks at a time. Raise your hand to get your chance to talk.
4. No put downs or inappropriate language
5. Remain in your seat at the end of class until the teacher dismisses you
6. No talking during announcements
7. No food or beverage in class (except water)
8. No cell phones, i-pods, or video games in class

Behavior that is not in accordance with these expectations or that is not conducive to a safe and constructive learning atmosphere can result in any of the following consequences: 1.) conference with student, 2.) after school detention, 3.) removal from class, referral to Assistant Principal, and conference with parent or guardian. Severe behavior will result in immediate removal from class. At the end of the quarter, if you have any unserved detentions, you will receive an incomplete in the course until you have made up your obligations.

Curriculum – We will be covering the remaining three options plus two other small units.

Option 1: Probability and Statistics
Option 2: Discrete Mathematics
Option 3: Abstract Algebra
Unit 4: Geometry
Unit 5: Linear Algebra

These units are in preparation for the IB Further Math HL exam. Note, we will not have time to re-teach all of the topics from Calculus and IB Math HL so you will be expected to remember most of your previous learning and get those skills polished up with minimal practice and review.

Grading Policy

This is how grades will be calculated:

Students will be guaranteed the following grades if they achieve this percentage of the total points.

<u>Trimester 1</u>			
Quizzes and Tests	70%	90 - 100 %	A
Homework	20%	80 - 89 %	B
Internal Assessment	10%	70 - 79 %	C
		60 - 69 %	D
		0 - 59 %	F
<u>Trimester 2</u>			
Quizzes and Tests	60%		
Internal Assessment	20%		
Homework	10%		
Final Exam	10%		

Homework - Homework is an essential part of this math course. You will have a homework assignment almost every day. These assignments will be checked and graded daily. Every assignment is worth 10 points. Since homework provides you with your first opportunity to practice, it is expected that you will make mistakes. Because of this, I will accept assignment for full credit up to the unit test date to give you the opportunity to continue working on problems that you initially had difficulty with and to give you time to seek advice and help on such questions. ***Assignments turned in after test day will not receive credit.*** Assignments with no work will receive no credit. I will post answer keys to all assignments on the class website so it will be your responsibility to correct your assignments at home prior to coming to class. If you do not have internet access at home, I can make copies of the answer keys for you. If you turn in your assignment and it has not been corrected, then I will assume that half of the problems are wrong and you will receive half credit. I will not correct them for you. Falling behind in homework will strongly affect your grade. Not only will you lose credit on daily work but it will also be difficult to master the topics and pass the tests.

***Hand-Held Electronic Devices** – Hand held devices used to connect to the internet such as an i-pod touch, i-phone, or blackberry can be used during work time to display the solutions manual so that you can check your work as you go and so that you can ask more specific questions. If you are using your hand held device to check your e-mail, play video games, listen to music, text, make phone calls, or surf the web, you will lose your privilege to use a hand held device in class. Please self-monitor appropriately or else I will have to reconsider whether you should be treated like an adult.

Attendance - Good attendance is critical for success in high school. By missing class, you will miss instruction and will have difficulty completing assignments and passing tests. Some of the requirements are based on group activities which take place during class time and may not be able to be made up outside of class. You are expected to be in class every day on time. Making up work due to an excused absence is your responsibility. This cannot interrupt class time, the teacher, or other students. Generally, a student has 2 days to make up work for each day of excused absence. Missing work resulting from an unexcused absence will not be accepted for credit. Following an absence, it is your responsibility to correct your assignment. If you turn in your assignment and it has not been corrected by someone, then you will receive half credit. Champlin Park has an attendance policy that states if you are truant from class 4 or more times in one quarter, you will not receive credit for that class. Also, you will only be allowed to be tardy 3 times per quarter. Every tardy after 3 will result in a detention. At the end of the quarter, if you have any unserved detentions, you will receive an incomplete in the course until you have made up your obligations.

Tests - We will have a test at the end of each unit. You will be allowed to use a pre-made note sheet on your tests since this is what you be able to use on the IB exams. Part of every test will be calculator and part will be non-calculator. This is an IB course, you will be held to a higher standard than in regular classes. Following each test, we will go over the test to make sure that you understand questions that you missed on the tests. Each student will be responsible for completing test corrections which will count as a homework assignment. There will be no retesting. If you have an excused absence on the day of a quiz or test, it is your responsibility to make this work up. This usually requires you to stay after school, come before school, or use your travel time during advisement and must be done within one week of the absence or the test score will become a zero. If you were truant on the day of a quiz or test, you will receive no credit for that assessment. Keep in mind, if you do not receive credit on a test, the likely result will be failing this course.

Malpractice – Students in the IB program are expected to maintain the highest standard of academic and personal integrity. Integrity includes honesty, trustworthiness and reliability. Every student has the right to pursue an education free from the problems caused by any form of intellectual dishonesty. IB defines *malpractice* as “behavior that results in, or may result in, the candidate or any other candidate gaining an unfair advantage...” and includes

- Plagiarism – the representation of the ideas or work of another person as the candidate’s own
- Collusion – the supporting of malpractice by another candidate, as allowing one’s work to be copied or submitted for another
- Duplication of work – the presentation of the same work for different assignments
- Other – includes
 - taking unauthorized materials into an exam, test, quiz or other assessment situation
 - engaging in misconduct during an exam, test, quiz or any other assignment
 - falsifying any records
 - copying, paraphrasing, reusing or submitting another’s work without acknowledging the source, including information from the Internet
 - receiving or giving of any unauthorized assistance on any form of academic work

Academic malpractice will be dealt with in the following manner:

- 1) Students will receive a failing grade on the assignment (which may result in failing the course)
- 2) Parents will be notified.
- 3) National Honor Society will be notified.

If the academic malpractice occurred while taking an IB internal or external assessment, you also risk your IB credit and your status as an IB diploma candidate.

IB Exam – Everyone in the class will be expected to sign up and take the IB Math HL exam and also the IB Further Math HL Exam. This is how you will earn College credit in your class and it is also how I get feedback as to whether I have prepared you appropriately. The IB exam is comprehensive – it will cover topics from Algebra 2, Geometry, Trigonometry, Calculus, and Probability and Statistics. The IB exam tests your ability to apply these skills in novel situation. Consequently, the IB exam is less predictable than the AP exam was and the questions are less stylized. The IB Math HL exam has 3 papers. Papers one and two cover all of the topic areas with one paper being calculator active and the other paper being non-calculator. Paper three is called the “options” paper. Classes choose between four topic areas to go into deeper study. These topic areas are Statistics and Probability, Calculus, Discrete Mathematics, and Set and Groups Theory. We will be testing Calculus as our Option and we have already covered all of the Calculus Content needed for the Options paper last year. The Further Math Exam consists of two parts: Non-Calculator and Calculator testing all of the options and also the Geometry and Linear Algebra units.

Internal Assessment – IB has a internal assessment this year for Math HL called a Mathematical Exploration Paper. The IB written exams count for 80% of your IB score and the internal assessment counts for 20%. You each will be writing a paper on a topic of your choosing relating to a particular topic. This paper is to demonstrate original mathematics. The mathematics used in the paper must be commensurate with HL Mathematics. You may use Geometry, Algebra, Trig, Calculus, Statistics, Probability or any combination of these in your paper. I will be providing you a scoring rubric so that you know what is expected. However, this is an independent task and I cannot “teach” you the mathematics or help you do the problem. You will not be able to work together on it.

Final Exam and Review - In this course, students take a comprehensive final exam in similar format to the IB Exam. This exam consists of both calculator and non-calculator active portions. All questions on the IB exam are free response – there are no multiple choice questions on the IB exam. During review, students work collaboratively in cooperative groups while working out IB style questions, including previously released IB questions.