Algebra 2/Trigonometry – IB Level
2015-2016
Mrs. Jennifer Galla

Welcome to our math class. Let's work together to make this a successful year for all of us!

COURSE DESCRIPTION: This course prepares students for higher level mathematics. Students will gain a deep understanding of the fundamental concepts and relationships of functions. They will expand their knowledge of linear, quadratic, and exponential functions to include logarithmic, polynomial, rational, piece-wise, and trigonometric functions. Students will make frequent use of the graphing calculator for course work. IB coursework is utilized to deepen the students' understanding of concepts, their connections, and their applications.

TEXT: *PRECALCULUS with Limits*: Larson and Hostetler
         Algebra 2: Collins, William, et al (reference material)

To be successful in this class:

1. Come to class prepared.
2. Always pay attention in class and take good notes.
3. Do homework assignments to reinforce material and to prepare you for quizzes/tests.
4. Study for tests by reviewing notes, quizzes, and text.
5. Observe the MPS honor code and follow the student expectations outlined in your handbook.

Items needed daily

- A binder in which to keep your notes, tests, etc. OR iPad plus a folder
- Graph paper
- Straight edge
- A TI83 or TI84 graphing calculator.
- Pencils – *All work to be handed in must be in pencil.*
- Dry erase marker

Homework and Tests

Before you turn in any homework or take a test this year, please refer to your handbook as a reminder of academic integrity. I will not tolerate academic dishonesty and I will issue a zero and a tier 2 detention for any offense.

Homework will be assigned daily. It will be posted on the MPS website or you can email me. Do not come to class and say, "I didn't know how to do the homework". That is why I have extra help. We will go over the homework, but it is to check your answers, not to re-teach you. If you miss a deadline, your grade will be 25% reduced the next day (not the next time the class meets).

I will arbitrarily select homework assignments to collect and check. This will be a 5 point check. These homework checks must be submitted at the time of collection in order to receive credit. Therefore, it is in your best interest to complete every homework assignment to your best ability and ask questions if there is something that you do not understand.

Please keep hard copies of all graded assignments. If there is a grade discrepancy, the burden of proof lies with the student.

GRADES

Your grade per term will be determined as follows:

- 3 or 4 exams per term
- homework checks
- in-class assignments or homework assignments
- extra practice worksheets
- IB problems from past exams

There will be a cumulative final at the end of the year.

ATTENDANCE

In the event that you become ill or cannot come to school for any reason, you must make up the assignments you miss. The homework will always be posted so it should be done on the day of your return to class. If a worksheet is assigned, it will be posted on my homework page. If you miss only one class period before a test you will be expected to take it along with the rest of the class upon your return. If you are absent the day of a test, have your parents let the attendance office know that they are aware you have a math test that day. The test will be made up in class the day of your return. You will be responsible for getting notes missed.

PROGRESS REPORTS

You and your parents/guardians should be checking the online grading system for grade updates. Students, please communicate with your parents. Tell them your grades so that they are not surprised/shocked when they see them online.

HELP SESSIONS

Even the brightest of students have difficulty understanding some concepts in mathematics. Please do not hesitate to see me if you are having trouble, and try not to get behind. *It is easier to keep up than catch up.*

My help sessions are Thursdays after school in room 119. If this time does not work for you, please see me and we'll try to figure something out. I will also have NHS tutors available at other times. I will let you know the times once I find out. If you have a question outside of school, my email is jgalla@mpslakers.com.

Math Lab is open Tuesdays and Thursdays after school from 3:15 - 4:00 and Wednesday mornings starting at 7:30 until 8:15 in room 120. It is staffed by a math teacher and several peer tutors. This is a place where you can work on your homework with someone nearby to ask questions, get tutored, or get caught up on a topic missed.

TOPICS COVERED

Intro to Algebra 2
- solve systems of equations
- solve absolute value equations and inequalities
- solve quadratic equations
- solve rational equations
- solve radical equations
- exponent rules
- work with rational exponents

Chapter 1: Functions and their graphs
- find x and y-intercepts
- graph and write linear equations
- determine whether relations are functions
- use function notation
- state the domain of a function
- find the zeros of functions
- determine the average rate of change of a function
- identify even and odd functions
- identify and graph parent functions
- use shifts and reflections to sketch graphs of parent functions
- add, subtract, multiply, divide functions
- find the composition of functions
- find inverse functions
- verify that two functions are inverse functions

Chapter 2: Polynomial and rational functions
- write quadratic functions in standard form and sketch graph
- state the max or min of a quadratic
- sketch graphs of polynomial functions
- find and use zeros as sketching aids
- use long or synthetic division
- work with the imaginary unit i
- find complex solutions of quadratic equations
- find all zeros of a polynomial function

Chapter 3: Exponential and logarithmic functions
- sketch exponential functions with base a or e
- sketch log functions and natural log functions
- evaluate logarithmic functions
- solve exponential and log equations
- use the change of base formula
- use properties of logs to evaluate log expressions or solve log equations
- use exponential growth and decay functions

Chapter 4: Trigonometry
- use radian and degree measure
- find the arc length, radius, or central angle of a circle
- evaluate trig functions using reference angles and the unit circle
- find the area of a sector of a circle
- use amplitude and period to sketch the graphs of sine and cosine
- sketch translations of the graphs of sine and cosine
- write an equation of a sine or cosine graph
- recognize graphs of tan, cot, sec, and csc

Chapter 5: Analytic trig
- recognize and write the fundamental identities
- use the fundamental identities to simplify trig expressions and verify identities
- use basic algebraic techniques to solve trig equations
- solve trig equations having double angles
- use inverse trig functions to solve trig equations

Chapter 6: Triangles and trigonometry
- solve right triangles using trig functions and the Pythagorean theorem
- use the law of cosines to solve oblique triangles (SAS, SSS)
- use the law of sines to solve oblique triangles (AAS, ASA)
- check for ambiguous case when using the law of sines to solve for an angle
- find the area of a triangle

Binomial Theorem
- use the binomial theorem to write binomial expansions

Arithmetic and Geometric Sequences
- Recognize, write, and find the nth terms of arithmetic and geometric sequences
- Find nth partial sums of arithmetic and geometric sequences

Good luck & have a fantastic year!