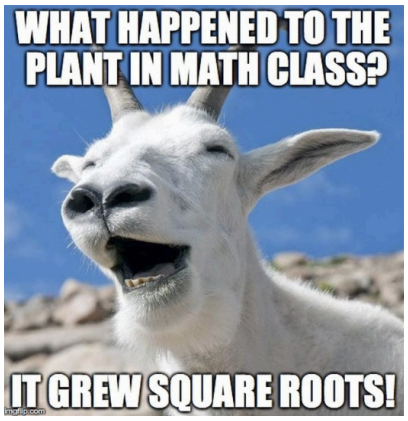
Wachusett Regional Highschool

Class: Mathematics
Topic: PreCalculus CP
Instructor: Ms. Lucier
Classroom: E111
Workroom: E213
Email: Skylar_Lucier@wrsd.net
Office Hours: Monday, Wednesday, Friday, 2:10-5:00 PM
Textbook: A Graphing Approach: PreCalculus



Course Description

This course is rigorous and prepares students to take Calculus in the future. It expands upon some concepts studied in Algebra 2 such as polynomial functions, matrices, and complex numbers. It includes an in depth study of many other types of functions including linear, composite, inverse, exponential, rational, and trigonometric. It also introduces advanced mathematical concepts such as conics, polar coordinates and sequences and series. Some mathematical modeling is done to relate these pre-calculus concepts to the real world. A graphing calculator is required for this course

Instructional Philosophy:
Students will work independently and in teams with other students, teachers or employers. Students will be expected to use a variety of strategies to complete assignments and solve problems.

Students will:

- Become independent learners and analytical thinkers,
- Communicate effectively in written and verbal forms;
- Understand and apply concepts and skills,
- Realize the reasoning behind the steps required to complete assignments,
- Integrate academic and technical concepts,
- Find creative solutions to real-life problems, and
- Use technology responsibly to enhance learning.

Teachers will:

- Describe the skill and its purpose,
- Model the use of the skill,
- Guide student practice using assigned situations, and
- Encourage students to apply their skills in other new situations.

Student activities will include:

- Independent work
- Group work
- Lecture

Topics to be Covered:

Semester 1

Unit 1: Exponential and Logarithmic Functions

- Exponential growth and decay models
- Inverse relationships between exponentials and logarithms
- Properties of logarithms (product, quotient, power rules)
- Solving exponential and logarithmic equations
- Applications in finance, science, and population modeling

Unit 2: Sequences and Series

- Arithmetic and geometric sequences
- Recursive and explicit formulas
- Arithmetic and geometric series
- Finite and infinite series
- Sigma (Σ) notation and summation rules
- Applications in finance, population growth, and pattern modeling

Unit 3: Polynomial and Rational Functions

- Polynomial end behavior and graphing
- Factoring techniques and solving higher-degree equations
- Zeros and theorems (Factor Theorem, Remainder Theorem)
- Graphing rational functions
- Asymptotes, holes, and discontinuities

Unit 4: Conic Sections

- Definition and formation of conic sections
- Standard and general forms of conic equations
- Graphing and analyzing:
  - Circles
  - Parabolas
  - Ellipses
  - Hyperbolas
- Completing the square to rewrite equations
- Applications and modeling with conic sections

Semester 2

Unit 5: Triangle Trigonometry

- Right triangle trigonometry (SOH-CAH-TOA)
- Trigonometric ratios and reciprocal functions
- Solving right and oblique triangles
- Law of Sines and Law of Cosines
- Applications in real-world contexts

Unit 6: Trigonometric Functions

- Angle measure: degrees and radians
- Unit circle definitions
- Graphing sine, cosine, tangent (with transformations)
- Inverse trig functions
- Real-world applications (harmonic motion, tides, etc.)

Unit 7: Trigonometric Identities and Equations

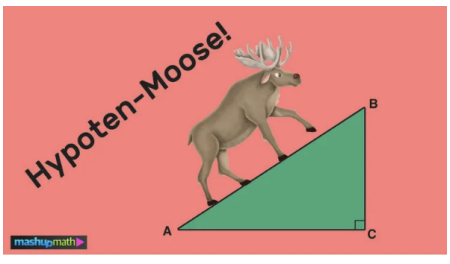
- Fundamental identities
- Sum and difference identities
- Double-angle and half-angle formulas
- Verifying identities
- Solving complex trig equations

Unit 8: Applications of Trigonometry

- Law of Sines and Law of Cosines
- Solving oblique triangles
- Area of triangles using trig
- Polar coordinates and graphing
- Trig form of complex numbers (if time allows)

Unit 9: Systems of Equations and Matrices

- Solving systems algebraically (substitution/elimination)
- Systems of nonlinear equations
- Introduction to matrices and matrix operation
- Determinants and Cramer's Rule



Class Rules:

- NO CELL PHONES or other electronics in class unless asked to take out said device
    - Cell phones should be turned on silent & put in the phone pocket before attendance. You will be assigned a number for your phone pocket. If your phone is not in the pocket you will be marked as absent.
    - No headphones/earbuds unless you have prior approval
    - Students have two "freebie" warnings throughout the year for unsanctioned electronic usage during class time. Any subsequent incidents will result in a referral to the student's assistant principal for disciplinary action
- Raise your hand before speaking
- No food or drink in class (except clear-colored water or a snack during snack period)
- No talking when the teacher is talking
- Come to class prepared to learn (pencils sharpened, laptops charged or plugged in...)

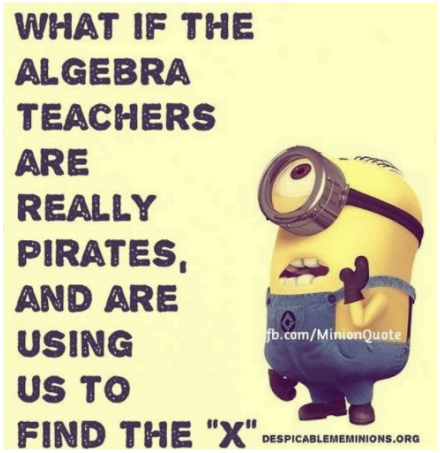
Respect the teacher. This includes, but is not limited to, listening to when the teacher is speaking or teaching, removing hats and hoods while in class, speaking constructively and respectfully to the teacher, etc.

Respect your classmates. This includes, but is not limited to, refraining from talking or making noise during active teaching, refraining from bullying of any sort, working constructively with classmates in group work, refraining from eating or drinking a non-water beverage in class, leaving others material alone, etc.

Respect yourselves. This includes, but is not limited to, arriving on time every day prepared for class, beginning work on the warm-up problems as soon as one is seated, taking thorough notes, completing all expected work, etc.

Communication:

I update PowerSchool and Google classroom weekly. It is your responsibility to track your grades and updates/materials on Google classroom. Parents/guardians are also encouraged to check their student's PowerSchool account and Google Classroom periodically to be aware of their student's progress in class. Please do not hesitate to email with any questions or concerns, as that is the quickest and most convenient mode of communication for me.



Technology:

Some technology we will be using this year include:

- Google Classroom
- Delta Math
- EdPuzzle
- ...And Many More!!!

Chromebooks:

All incoming students will have a Google Chromebook that will be used in a multitude of ways during the school year. Students are expected to bring their charged computer to school every day. The Chromebook will act as the student's main access point for email and Google Classroom. Doing work for other classes, playing games, social media use, etc. is strictly prohibited and will result in loss of the Chromebook for the class and a detention.

Google Classroom:
Students are asked to join a Google Classroom. Google Classroom is a virtual space where all class notes, classwork, homework, study guides, and announcements will be posted. It will act as one of the forms of communication between student and teacher. Students can feel free to download the Google Classroom App on both Android and iOS devices. Students can join their respective classes using the appropriate code below.

- ★ B Block - **7rvl57bi**
- ★ C Block - **dnqnblbi**
- ★ D Block - **6eo57v37**
- ★ F Block - **ck6fv2zu**
- ★ G Block - **tb2c2qvr**

Email:
Students receive a school email address (through Gmail), which will be the main form for direct student-teacher communication. Students are expected to check their email daily.

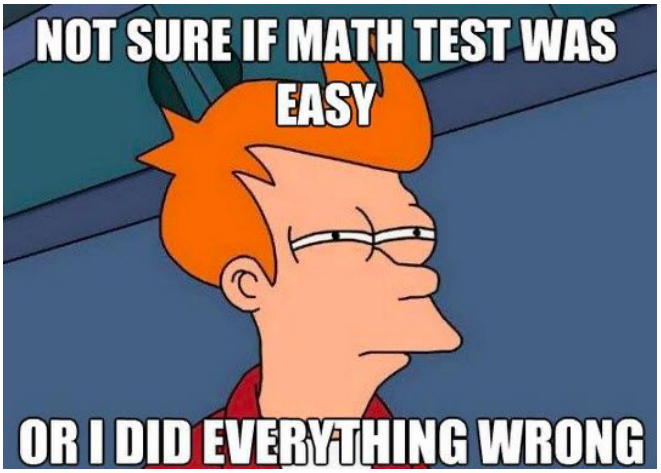
Classroom Procedures:

1. All students will come to class on time and prepared with supplies to take notes, a charged Chromebook, and any assignments that are due.
2. Put your phone up in the phone pouch
3. Upon arrival, students will take out any homework and work on the do now for the day.
4. During class, students will focus on the contents of this class.
5. Students will wait until the bell to pack up at the end of class.

Materials:

Students are expected to bring a **math binder/notebook**, **pencil(s)**, and **computer** to class. Your Chromebook must be charged and ready to use every day. Cell phones *will not* be allowed as calculators. If you are unable to provide a calculator for yourself there will be designated classroom calculators (Calculators are not mandatory).

**Calculator acceptable for PreCalculus* (TI-83, TI-84, or TI-84 Plus)



Grading:

If you have extenuating circumstances prohibiting you from being able to complete the work in the allotted time frame, I ask that you either speak to me in person or send me an email letting me know the reason you were unable to complete the work on time. Students who fail to hand in assignments on time will receive a grade of "0" for the assignment.

You will be able to complete quiz corrections (on quizzes ONLY). Quiz corrections will be done on a separate piece of paper with the specific numbers that were marked as incorrect. Students will have a chance to redo those questions for a new quiz grade. The previous grade and the new grade will be averaged.

The popsicle system will be used in my class. Students will receive popsicles with points on them based on their grades for quizzes ONLY! (not quiz corrections). At the end of every quarter students will be able to use their points to earn back points on missing homework, classwork, quizzes, tests or projects.

- 75-79 - 500 points
- 80-89 - 1,000 points
- 90-99 - 2,000 points
- 100 - 3,000 points

Grades

Your grade in this course will be composed of the two semesters. The first semester will be weighted as follows:

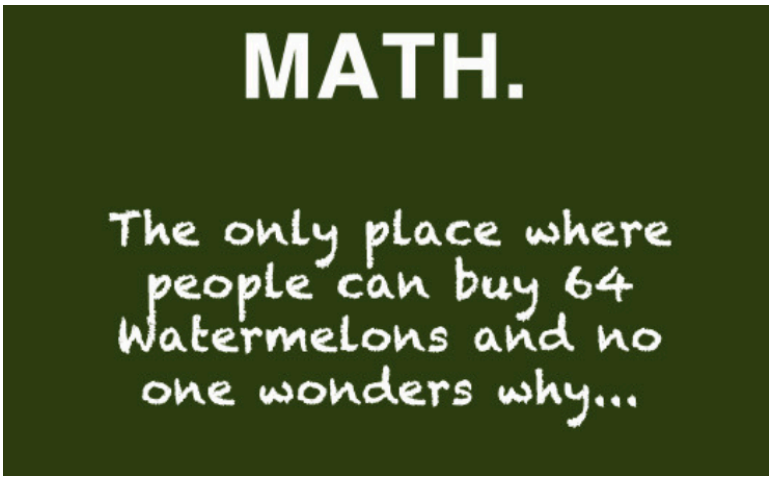
- 20% - First Quarter
- 20% - Second Quarter
- 10% - Midterm

With the second semester being weighted similarly:

- 20% - Third Quarter
- 20% - Fourth Quarter
- 10% - Final

Semester Grades:

Grading each quarter will be completed based on a point system. Quarterly grades will be computed as follows: accumulated points divided by total points.



Points (per assignment)	**Criteria**	**Method**
6	Homework Grading Breakdown: • 6 - It is clear that the student put a great deal of effort into completing the assignment. The solutions were accurate. Student showed work • 5-4 - Represented satisfactory work. The student may have lost a point due to incorrect solution(s), or work is somewhat shown. • 3-2 - Represents less than satisfactory work. The student either did not attempt the problem(s) or made little attempt to show work. • 1 - Represents unsatisfactory work. The student either did not attempt the problem(s) or made no attempt to follow the homework procedures or show work. • 0 - Missing: the student did not pass in the assignment or it is blank	Independent and group work, partially completed in class and outside of class.
4	Classwork Grading Breakdown • 4 - Students were engaged in class and completed the classwork/Do Now • 3/2 - Students were somewhat engaged in class and classwork was completed but incorrectly • 1 - students were not engaged in class and classwork was partially completed/incorrect • 0 - Students were not engaged in class and classwork is incomplete	Independent and group work on warm-ups and extended learning assignments.
20 - 30	Quizzes	Short assessments, math skills and concepts, and terminology
100	Tests/Projects	Projects, short answer and open response questions, and unit tests

Make-Up Work and Extra Help:

Students are required to make up all work missed due to absence. All work not turned in the day it is due will be entered in PowerSchool as a "0" and will be marked accordingly; "absent" if the student was absent, or "missing" if the student is in class and did not complete the assignment (if you are absent you have one extra day to turn in work for full credit). Late homework will be accepted with the highest possible grade of 50% of the original possible score. Late work will be accepted no later than when grades close for the quarter in which it was assigned. If a student is absent, it is their responsibility to check Google Classroom and the "Were you absent" folder wall in class. If you feel that you need further assistance, please stay for extra help.

Attendance:

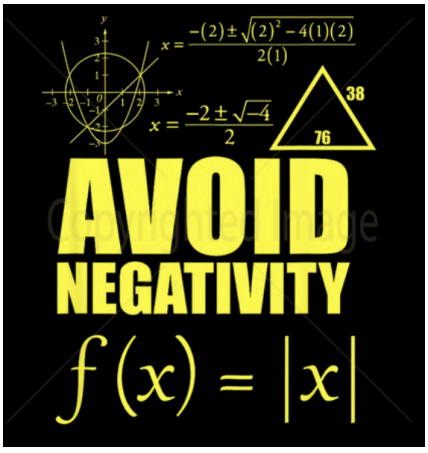
Attendance is required in each course and will be logged daily in Powerschool by the teacher. Live classroom sessions are mandatory for all students, except for absences as allowed by the school's attendance policy. Please have your parents communicate with the school if you will be absent. Please refer to the Student Handbook's attendance policy regarding absences. A "skip" during any graded work will result with a grade of "0".

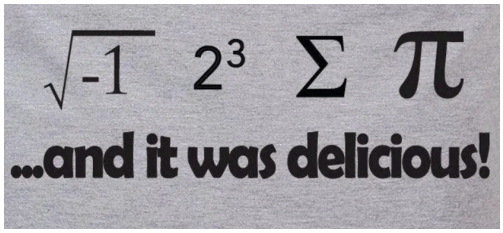
Academic Integrity:

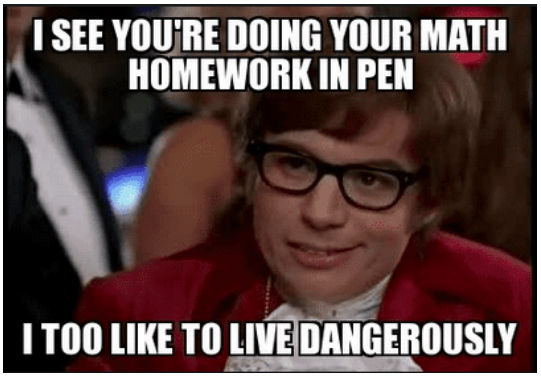
I generally have a zero-tolerance policy for cheating, and student(s) caught cheating will receive a "0" for the work. Students who collaborate with others in cheating, by allowing their papers to be copied or by other means, are subject to the same penalty. Please refer to the Student Handbook.

Zero Tolerance Policy:

There is a zero-tolerance policy for discrimination against race, gender, disability, and sexuality in this classroom. Any comments, even if intended as humor, will be forwarded to the student's administrator and dealt with according to the student handbook.







Syllabus Receipt Form:

Student's name (please print):_____

Course name: _____ Block:_____