***TMSA Precalculus Course Syllabus***

***Teacher Contact Information***

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***Course Outline***

Precalculus is an honors-level study of trigonometry, advanced functions, analytic geometry, data preparation, applications and modeling in preparation for calculus.

***School Provided Materials***

We will be using an online Text: Precalculus by Schultz, Briggs, and Cochran at <http://mymathlabforschool.com>. Homework may be assigned from this text, in an online format, or through worksheets distributed in class.

***Required Student Materials***

Students need a graphing calculator, such as a TI-83 or TI-84. There are specific components of the course and subsequent end of the year exam that require these calculators. Pencils are the only acceptable writing utensil. Students are expected to organize their class materials how they see fit, but we recommend a 1.5” binder with tabs for homework, classwork/notes, and study guides/reviews.

***Wish List***

I would love it if students or their families could contribute any of the following for class use:

Dry erase markers

Tissues

Pencils

***Expectations***

Students will arrive in class on time, with the materials they need for class, and ready to focus entirely on the lesson and activities of the day.

Students will maintain a positive attitude as well as positive behavior.

Work will always be shown clearly.

I will always announce tests in advance (approximately 1-2 weeks) but quizzes may or may not be announced. There will be at least one quiz or test every week.

***Classroom Rules***

Be respectful of your teacher.

Listen when the teacher is talking

Follow directions carefully

Do not interrupt the teacher/class (wait to be called on)

Be respectful of your fellow students

Always speak positively of, or to, your peers

Be polite

Be sensitive to individuals’ beliefs and values

Be respectful of your school

Treat school property with care

Follow school rules and policies

Be respectful of yourself.

Always speak positively of yourself

Be your own advocate

***TMSA Plagiarism and Cheating Policy (From Student Handbook)***

*Cheating and plagiarism are deceptive choices made by students to misrepresent the student’s true knowledge of the subject material (cheating) or misrepresenting information as their own ideas/concepts/words by not giving proper credit to the original source (plagiarism). All papers or projects submitted at TMSA are required to be in the student’s own words unless stated in writing by the teacher otherwise.  Therefore, any copying of information from the Internet or any other source (i.e. “cutting & pasting”, etc.) is considered plagiarism. However, quotations, drawings and/or pictures may be taken from the Internet or other source as long as they are properly cited in the document.*

Please note that students may suffer additional consequences from their clubs/organizations for instances of cheating and plagiarism. Below are the classroom consequences for cheating/plagiarism:

* First offense: assignment is given automatic, permanent zero. The teacher will create a discipline write up for the student and contact the parents.
* Subsequent offenses:  assignment is given automatic, permanent zero. The teacher will create a discipline write up for the student and the Discipline Coordinator will determine further consequences.

***Grading Policy***

* Major 60%

Example: Tests

* Meduim 30%

Example: Quizzes

* Minor 10%

Example: Home work

- Homework will be assigned very frequently (almost every day of class). Homework grades will be posted weekly. If the homework is not completed on the due date it will be accepted (for half credit) on the next class meeting day. If the homework is not completed then it will remain a 0.

- Test grades are final and retakes are not allowed. Test corrections may be completed (and are highly encouraged!) for homework credit.

- Quiz grades are final and retakes are not allowed. Quiz corrections are also encouraged, but homework credit will not be given for those.

***STEM Integration***

Triangle Math and Science Academy is now integrating STEM instruction into all courses. For math 2, this means that for the majority of our class time, students will be investigating material in a collaborative manner through problem-solving, rather than receive total direct instruction.

***Units and Essential Questions***

* Unit 1: Functions
  + Define functions.
  + Determine whether a relation is a function.
  + Function notation.
  + Domain and range.
* Unit 2: Polynomial and Rational Functions
  + Define polynomial function.
  + Graph a polynomial function.
  + End behavior of a polynomial function.
  + Estimate the local minimum and maximum values and determine the range of a polynomial function.
  + Intervals of increasing and decreasing.
  + Estimate x-intercepts of polynomial function.
  + Sum, difference and product of polynomial functions.
  + Quotient of polynomial functions.
* Unit 3: Exponentials and Logarithms
  + Exponential growth and decay.
  + Exponent identities.
  + Domain, range, end behaviors and general characteristics of exponential functions.
  + Apply transformations to exponential graphs.
* Unit 4:  Unit Circle Trigonometry
  + Classification of angles.
  + Define radian and degree.
  + Find coterminal angles.
  + Convert between radian and degree measures for angles.
* Unit 5:  Trigonometric Identities
  + Convert between degrees and DMS of angles.
  + Define six trigonometric functions.
  + Apply Pythagorean identities.
  + Define inverse functions.
  + Solve right triangles.
* Unit 6:  Triangle Trigonometry
  + be able to distinguish between an identity and an equation;
  + understand how to verify an identity;
  + know the complementary angle identities;
  + have memorized nine Fundamental identities;
  + be able to derive all Fundamental identities from a subset of the Fundamental identities;
  + be comfortable using Fundamental identities to simplify expressions, solve equations, and verify identities.
  + Distinguish between an identity and an equation.
  + Verify an identity.
  + Know complementary angle identities.
  + Know and derive fundamental identities.
  + Simplify trigonometric expressions, solve trigonometric equations and verify trigonometric identities.
* Unit 7:  Parametric and Polar Graphs
  + Generate a graph of parametric equations.
  + Eliminate the parameter of parametric equations.
  + Find a parametric representation of a function or a Cartesian equation.
  + Knowledge of parametrization of a curve is not unique.
* Unit 8:  Conic Sections
  + Define parabola, ellipse, hyperbola and circle.
  + Find the directrix, focus, vertex, axis, asymptotes and equations for the above conics.
  + Find parametric representations and Cartesian equations for the above conics.
  + Graph conics.
  + Determine which conic equation is represented.
  + Understand reflective property of conics.
  + Define eccentricity-directrix of conics
  + Understand how polar equations relate to conics.
  + Find polar equations whose focus is at the origin.
  + Graph conics given polar equations.
* Unit 9:  Sequences and Series
  + Define sequences and series.
  + Illustrate differences and relationships.
* Unit 10:  Limits
  + Find the instantaneous velocity of a moving object.
  + Find the slope of a tangent line to a curve.

Please sign and return to Mr. Murray by 8/25/17 indicating that you have read and understand the syllabus for Precalculus.

Student Name (Printed): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name (Signed): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent Name (Signed) :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_