Precalculus Syllabus & Information

2021-2022 School Year

Teacher: Ms. Carrell & Mr. Below
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Conference Period: 6th/1st Period
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As the name "Pre-calculus" indicates, this high level course is designed to prepare students for calculus. It is an in-depth study of functions (including trigonometric functions) and relations and their transformations, sequences and series, and additional mathematical representations. Students taking this rigorous course should have a strong background in both algebra and geometry. Our curriculum is grounded in the updated TEKS and will be taught from a combination of textbook and class notes.

SUPPLIES

Each student will be expected to bring the following to class each day:

- Notebook / paper / binder
- Pencil
- Textbook: either digital or print
- Graphing calculator (TI-84 preferred; TI-89 not allowed)
    - Recommended students buy one
    - Plano East TI-84 graphing calculators are available on a first come, first served basis.
        - The calculator uses 4 AAA batteries. Students provide their own batteries.
        - Students must submit the Parent Permission Form before calculator pickup.
        - Calculator pickup schedule:
            - August 16 - 20, both lunches in B1-262
            - August 23 - 27, both lunches in B1-262
            - After August 27, Mondays & Thursdays, both lunches in B1-262
        - To access the form, scan the QR code or visit https://tinyurl.com/PESHCalculatorForm

ONLINE PLATFORM CODES

Google Classroom	Delta Math	Remind
2nd Period (Below): subtusw 2nd Period (Carrell): ceykoh3 3rd Period (Carrell): vmqudpj 5th Period (Carrell): eixkqq6 6th Period (Below): pfpydhi 7th Period (Below): dicje65	2nd Period: R8LK-4AV2 3rd/6th Period: RL96-NC3R 5th/7th Period: 74V2-X77G	Text **@3cbk6hh2e** to 81010

TEXTBOOK

The state-adopted textbook for this course is Texas Precalculus, authored by McGraw-Hill. Again, it will be of utmost importance for students to have access to a book (either digital or print) at all times.

ABSENCES

- A calendar with all assignments and test dates will be given to students at the beginning of each unit.
- Students are responsible to make up all work as soon as possible following an absence.

GRADING

- The nine weeks grades will be computed as follows:
  - **40% Daily Work (includes classwork, homework and quizzes)**
  - **60% Tests**
- The semester grade is calculated using: 40% - 1st Nine Weeks; 40% - 2nd Nine Weeks; 20% - Semester Exam.
- Progress Reports will be sent out to all students at least twice during each nine week period.
- Students and parents can keep track of their grades via the internet site: **parentviewer.pisd.edu**

TESTING

- If a student is absent only the day before a test, he/she/they will be required to take the test as scheduled.
- Tests will be reviewed with students after grading; however, for testing security **tests will not be returned to students**. Parents wishing to view student progress may schedule an appointment to discuss.

RETESTING

- A retest date will be announced when each test is reviewed with students. The retest will be administered during a class period on a specific day. **No make-up test for the retest will be available.**
- Students may retest for FULL credit.
- Students wishing to retest will be required to attend one tutorial session before the retest date to be eligible to take the retest. The assignment missed on the retest date must be completed as homework.

TUTORIALS:

Tutoring is available for Precalculus on the following regular schedule:

Monday	Tuesday	Wednesday	Thursday
A/B Lunch – B1-268	A/B Lunch – B1-268	7:25-7:55 – B1-168 8:15-8:45 – B1-162 A/B Lunch – B1-268 4:15-4:45 – B1-281	A/B Lunch – B1-268

***NO TUTORIALS will be held after 0-hour on a test day**
***If you are in need of additional tutoring, please schedule times with your teacher.**

MAKEUP SCHEDULE:

Make-up testing is available on the following regular schedule:

Monday	Tuesday	Wednesday	Thursday
A Lunch – B1-162	B Lunch – B1-162	A Lunch – B1-162	B Lunch – B1-162

***You MUST have your student ID to make-up a test.**

STUDENT SURVEY
https://tinyurl.com/carrellstudent2122

PARENT SURVEY
http://tinyurl.com/carrellparent2122

Plano ISD Precalculus Syllabus 2021-2022

1st semester (84 days)

1st Grading Period (41 days)

Sequences and Series

- Write recursive formulas for a given arithmetic or geometric sequence.
- Identify whether a sequence converges or diverges.
- Find the sum of a finite arithmetic or geometric series.
- Find the sum of an infinite geometric series, if it exists.
- Write arithmetic and geometric series using sigma notation.
- Expand a binomial expression.
- Find a specific term of a binomial expansion.

Non-Trigonometric Functions

- Identify attributes of all non-trigonometric parent functions (and their transformations), such as domain and range, asymptotes, intercepts, extrema, end behavior, and intervals of increasing/decreasing.
- Determine odd and even functions graphically and algebraically.
- Graph and write equations of all non-trigonometric parent functions and their transformations.
- Describe the effects of the $|f(x)|$transformation.
- Write transformed non-trigonometric parent functions and piecewise-defined functions using function notation.
- Evaluate piecewise-defined functions.
- Rewrite absolute value functions as piecewise-defined functions.
- Use long/synthetic division to aid in graphing polynomial and rational functions.
- Use the Remainder Theorem, Factor Theorem and Rational Zero (Root) Theorem to aid in graphing polynomial functions.
- Identify extrema and intervals over which a polynomial is increasing or decreasing.
- Graph and write equations of polynomial and rational functions.
- Describe end behavior and asymptotic behavior using limit notation.

End of grading period: October 8

2nd Grading Period (43 days)

Continue Non-Trigonometric Functions

- Identify an appropriate domain for a real-world situation.

Non-Trigonometric Solving

- Solve exponential, logarithmic, polynomial, rational, and power (radical) equations and determine the validity of the solution(s) in context.
- Solve real-world applications for exponential, logarithmic, and polynomial equations and determine the validity of the solution(s) in context.
- Use the properties of logarithms to evaluate or transform logarithmic expressions.
- Evaluate logarithmic and exponential expressions.
- Manipulate literal equations to isolate a different variable.
- Represent polynomial and rational functions with sign patterns.
- Solve polynomial and rational inequalities and generate solution(s) in context.
- Generate and evaluate composite functions.
- Model and solve real-world applications using composite functions.
- Decompose a composite function.
- Demonstrate that function composition is not always commutative.
- Write the inverse of a function when it exists.

End of grading period: December 17

Semester Exams: December 14 - 17

Plano ISD Precalculus Syllabus 2021-2022

2nd semester (91 days)

3rd Grading Period (40 days)

Trigonometric Fundamentals

- Convert angle measures between degrees and radians.
- Identify radian and degree measures on the unit circle.
- Identify coterminal and reference angles.
- Calculate angular and linear velocities.
- Relate special angles (arc measures) to their coordinate pairs.
- Relate coordinate pairs of special angles to all six trigonometric ratios.
- Graph and identify the attributes of trigonometric parent functions.
- Graph and identify the attributes of transformed sine and cosine parent functions.
- Write an equation of a sine or cosine function given specific attributes or a graph.
- Model and solving real-world situations using sinusoidal functions.
- Identify the principal values (restrictions on domain) for sine, cosine, and tangent as they relate to the corresponding inverse functions.
- Evaluate and graphing inverse functions for sine, cosine, and tangent.
- Evaluate and writing an algebraic expression for compositions containing trigonometric functions and inverse trigonometric functions.
- Recognize trigonometric identities.
- Simplify trigonometric expressions using trigonometric identities.
- Evaluate trigonometric expressions using trigonometric identities.
- Verify the equality of two trigonometric expressions using trigonometric identities.

Trigonometric Solving and Applications

- Solve trigonometric equations and determining the validity of the solution(s) in context.
- Differentiate between general solutions and solutions over specified intervals.

End of grading period: March 4

4th Grading Period (51 days)

Continue Trigonometric Solving and Applications

- Solve oblique triangles using Law of Sines in context.
- Solve ambiguous case triangles in context.
- Solve oblique triangles using Law of Cosines in context.
- Calculate the area of any triangle.

Conics, Parametric, Vectors, and Polar

- Identify conic sections from a double-napped cone and its locus definition.
- Graph and identify the attributes of ellipses and hyperbolas.
- Write the equation of an ellipse or a hyperbola given specific attributes or a graph.
- Graph parametric equations.
- Convert between rectangular and parametric forms of equations.
- Solve real-world applications involving projectile motion.
- Represent vectors geometrically and algebraically.
- Perform vector addition and scalar multiplication geometrically and algebraically in mathematical and real-world problems.
- Represent vectors using magnitude and direction, component form or as a linear combination.
- Use vectors to model situations involving magnitude and direction.
- Use dot product to determine if two vectors are orthogonal.
- Represent points using the polar coordinate system.
- Convert coordinates between polar and rectangular.
- Graph and identify attributes of polar equations.

End of grading period: May 27

Semester Exams: May 24 - 27