



Dallas High School Home of the Dragons



Pre-Calculus

2013-2014

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Office Hours: Tuesday to Friday 3:00-3:30, additional times by arrangement.

Course Description:

This course is designed to advance students' mathematical thinking and prepare them for further mathematical coursework. This course will expand the concepts from Algebra 2, develop investigations on trigonometric functions, and apply and preview Calculus concepts. This course places a strong emphasis on the CCSS Mathematical Practices, to develop skills in mathematical reasoning and modeling. Students will receive mathematics credit for this course toward graduation.

Prerequisite: Algebra 2 (C or above)

Textbook: Advanced Mathematical Concepts, Gordon, Yunker, Vannatta, Crosswhite

Course Outline

Unit	Topic	Summative Assessment
(order subject to change based on pre-assessments)		Standards 1,2,6,7 will be assessed throughout the year
Unit 1	The Trigonometric Functions	Unit Test: Standards 9,10, 11
Unit 2	Graphs and Inverses of Trig Functions	Unit Test: Standards 12, 13
Unit 3	Trigonometric Identities and Equations	Unit Test: Standard 14
Unit 4	Vectors	Unit Test: Standards 3, 4, 5
Unit 5	Exponential and Logarithmic Functions	Unit Test: Standard 8
Unit 6	Rational Functions and Limits	Unit Test: Standards 6, 7

Standards to Be Assessed (bracketed numbers refer to the CCSS):

Use fractions, decimals, irrational, and complex numbers to solve problems.

1. Use properties of exponents to simplify expressions with fractional and radical exponents. [N-RN 1,2]
2. Reason quantitatively and use units and descriptive models to solve problems. [N-Q 1,2,3]

Represent, model and perform operations with vectors.

3. Recognize vectors as having both magnitude and direction, and find components with vector coordinates. [N-VM 1,2]
4. Solve and model problems using vectors. [N-VM 3]
5. Add, subtract and multiply vectors and compute their magnitude. [N-VM 4,5]

Analyze and interpret functions using different representations.

6. Interpret and sketch key features of graphs and tables in terms of their quantities, or a verbal description of the relationship. [F-IF 4]
7. Graph functions expressed symbolically and show key features of the graph, by hand and with technology. [F-IF 7 a-e]

Build new functions from existing functions.

8. Understand the inverse relationship between exponents and logarithms and use this to solve problems. [F-BF 5]

Extend the domain of trigonometric functions using the unit circle.

9. Understand radian measure and interpret as an extension of trigonometric functions on the coordinate plane. [F-TF 1,2]
10. Use special triangles to geometrically determine values of sine, cosine, tangent, and the relationship with the unit circle. [F-TF 3]
11. Use the unit circle to explain symmetry and periodicity of trigonometric functions. [F-TF 4]

Model periodic phenomena with trigonometric functions.

12. Model with trigonometric functions with specific amplitude, frequency and midline. [F-TF 5]
13. Restrict the domain of trigonometric functions to construct inverses, and use inverse functions to model and solve problems in context. [F-TF 6,7]

Prove and apply trigonometric identities.

14. Prove the Pythagorean Identity, addition and subtraction formulas and use them to solve

problems. [F-TF 8,9]

Career Related Learning Standards: Career-related learning standards (CRLS) are fundamental skills essential for success in employment, college, family, and community life. We have integrated the Personal Management standard from the CRLS into all courses at DHS. **This standard will be assessed and communicated independent of the academic grade.** It is included below and mainly includes behaviors that will be assessed in this course.

- **Personal Management Standard:** Exhibit appropriate work ethic and behaviors in school, community and workplace.
 - Students will identify tasks that need to be done and initiate action to complete the tasks.
 - Students will plan, organize and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
 - Students will take responsibility for decisions and actions and anticipate consequences of decisions and actions.
 - Students will maintain regular attendance and be on time daily.
 - Students will maintain appropriate interactions with colleagues.

Grading and Assessment:

Student's final grade for each course will be broken down into two categories:

- 1) **Academic:** based on assessments, tests, projects and performances that measure learning.
- 2) **Personal Management:** based on homework completion, homework checks, and other behaviors measuring the CRLS personal management standard.

The Final grade is calculated as follows: 75% of the course grade will be based on the **Academic** grade and **25%** on the **Personal Management** grade.

- Any items included in the Academic grade (PA) may be retaken and the higher grade recorded. Teachers may extend the retake time period, but as a rule all retakes need to be done within 2 weeks of the initial assessment.
- Students will complete extra preparation before retaking an assessment.
- Personal management work turned in late may be reduced by up to 50% credit.
- Retakes are not allowed on Personal Management assignments.
- Students must schedule performance retakes at their teacher's convenience. (Speech, drama, labs.)

Academic Integrity: We expect students to express academic integrity by doing their own work and properly documenting information gathered from other sources. Students who violate the

principles of academic integrity will be subject to disciplinary consequences (see Insubordination section of the on-line student agenda).

Extra Credit: Extra credit is not offered, however students may be given additional opportunities to show mastery.

Cell Phones and Electronic Devices: Mobile phones are not to be in use or in open view within classrooms, restrooms, locker rooms, or during lockdown situations. Misuse of mobile phone or electronic device will lead to the following consequences:

- ☐ 1st offense - confiscated device is delivered to the main office and returned to the student at the end of the school day.
- ☐ 2nd offense - confiscated device is delivered to the main office where parent/guardian will be contacted to reclaim possession.
- ☐ 3rd offense – discipline referral for “insubordination”, parent contact, and student will no longer be allowed to have the device at school without administrator permission

Personal Communication Devices Board Policy:

<http://policy.osba.org/dallas/j/jfceb%20r%20g1.pdf>

Tardies and Unexcused Absences: Points will be given towards the Personal Management grade at the end of each grading period (9 weeks/18 weeks) for daily attendance and punctuality. Points will be deducted for each tardy and each unexcused absence in that 9-week grading period. Overly disruptive behavior may also result in loss of attendance points.