



Common Core Standards Addressed:

- 8.AEE.A.2 Represent solutions to equations using square root and cube root symbols.
- HS.AEE.A.1 Interpret an expression which models a quantity by viewing one or more of its parts as a single entity. Reason about how changes in parts of the expression impact the whole, and vice versa.
- HS.AEE.A.2 Create and recognize an equivalent form of an expression to understand the quantity represented in an authentic context.
- HS.AEE.A.3 Rearrange formulas and equations to highlight a specific quantity.
- HS.AEE.B.4 Define variables and create equations with two or more variables to represent relationships between quantities in order to solve problems in authentic contexts.
- HS.AEE.B.5 Define variables and create inequalities with one or more variables and use them to solve problems in authentic contexts.
- HS.AEE.B.6 Solve systems of linear equations and systems of linear inequalities in authentic contexts through reasoning, algebraic means, or strategically using technology.
- HS.AEE.C.8 Construct a viable argument to justify a method for solving equations or inequalities. (**Zero product property**)
- HS.NQ.A.1 Use reasoning to establish properties of positive integer exponents. Extend the definition of exponentiation to include negative and rational exponents so as to be consistent with these properties. Utilize exponentiation to model authentic contexts.
- HS.NQ.A.2 Compare real numbers presented through different representations, including both rational and irrational numbers. Apply comparisons in authentic contexts.
- HS.AFN.A.1 Understand a function as a rule that assigns a unique output for every input and that functions model situations where one quantity determines another.
- HS.AFN.A.2 Use function notation and interpret statements that use function notation in terms of the context and the relationship it describes.
- HS.AFN.B.4 Compare properties of two functions using multiple representations. Distinguish functions as members of the same family using common attributes.
- HS.AFN.B.5 Relate the domain of a function to its graph and to its context.
- HS.AFN.C.6 Interpret key features of functions, from multiple representations, and conversely predict features of functions from knowledge of context.
- HS.AFN.C.7 Graph functions using technology to show key features.
- HS.GM.D.12 Apply sine, cosine, and tangent ratios, and the Pythagorean Theorem, to solve problems in authentic contexts.
- HS.GM.D.13 Apply the Pythagorean Theorem in authentic contexts, and develop the standard form for the equation of a circle.
- HS.GM.B.5 Apply and justify triangle congruence and similarity theorems in authentic contexts.
- HS.GM.A.3 Use the slopes of segments and the coordinates of the vertices of triangles, parallelograms, and trapezoids to solve problems in authentic contexts.

Assessment Strategies:

- Modeling-Based Classroom activities (in-class learning activities)



- Modeling-Based Projects (end of cluster project-based assessments)
- Summative Assessments (end of cluster)

Strategies for Differentiated Instruction (TAG, SPED, etc.):

Accommodations and modifications will be afforded students with special needs in compliance with their IEP & TAG individualized plans, and 504 accommodations as recommended by their respective teams. Guided notes will be used when determined. Students will be encouraged to use technology to assist in their completion of the various activities.

In addition, this course is full new material that should challenge all students. Students will receive a variety of challenging exercises and problems. Students may have the opportunity to develop their own problem to explore on the modeling project-based assessments. The students identified as TAG may work on additional activities such as programming the graphing calculator to accomplish routine problem solving.

Specific Learning Activities:

Learning Activities in Modernized PreCalculus include the following.

1. Taking notes. Students will take notes and use them to assist them in the daily activity.
2. Participating in class discussion (answering questions, seeking clarification etc.).
3. Completing assignments based on notes and participation.
4. Participate in groups to complete Modeling-Based activities.
5. Complete Modeling-Based Assessments (Projects) when assigned.
6. Meets Essential Skills for graduation requirements for mathematics via work samples, PSAT scores, or SBAC scores.