

COURSE OVERVIEW

Mathematics

Course Number: 435

Course Name: Trigonometry W/ Selected Topics

Content ID Code: MA

Course Description

This course divides content into four areas of study. The first involves concepts normally associated with a **trigonometry** course including solving and finding areas of right triangles, a study of radian measure leading to modeling cyclical behaviors with trigonometric functions, and the transformation of functions. The second area involves a review of functions (specifically linear relationships), proving geometric properties analytically, function sketching, finding absolute extrema for quadratics, and properties and graphs of **common functions**. The third area involves a **probability** unit for which the primary emphasis is on counting principles, permutations, combinations and hypergeometric distributions. The final area involves a review of content from previous years while injecting new content in **preparation for the PSSA test**, a general study of inverse functions, a specific study of inverse trigonometric functions, and trigonometric identities are introduced. Prerequisite courses for this course are Algebra II and Geometry.

Credits:

Course Creation Date:

Local Course #:

Instructional Time

Minutes:

Periods per Cycle

Cycles:

Clock Hours:

Methods of Assessment

- | | | | |
|---|---|---|--|
| <input type="checkbox"/> 3-D Projects | <input type="checkbox"/> Debates | <input type="checkbox"/> Plays | <input type="checkbox"/> Simulations |
| <input type="checkbox"/> Anecdotal Records | <input type="checkbox"/> Demonstrations | <input type="checkbox"/> Portfolios | <input type="checkbox"/> Speeches |
| <input type="checkbox"/> Benchmarks | <input type="checkbox"/> Diary/Journals | <input checked="" type="checkbox"/> Presentations | <input type="checkbox"/> Standardized Tests |
| <input type="checkbox"/> Chapter Tests | <input type="checkbox"/> Final Tests | <input checked="" type="checkbox"/> Projects | <input type="checkbox"/> Student Self Evaluation |
| <input type="checkbox"/> Checklists | <input type="checkbox"/> Group Work | <input type="checkbox"/> Publisher Tests | <input type="checkbox"/> Teacher Made Tests |
| <input checked="" type="checkbox"/> Class Participation | <input type="checkbox"/> Interviews | <input checked="" type="checkbox"/> Quizzes | <input type="checkbox"/> Visuals |
| <input type="checkbox"/> Computer Products | <input type="checkbox"/> Laboratory Experiences | <input type="checkbox"/> Research Projects | |
| <input type="checkbox"/> Conferences | <input type="checkbox"/> Observations | <input type="checkbox"/> Role Play | |
| <input type="checkbox"/> Criterion-referenced Tests | <input type="checkbox"/> Performance Tasks | <input type="checkbox"/> Rubrics | |

Possible Adaptations

- | | | | |
|--|--|---|--|
| <input type="checkbox"/> Large Print Books | <input type="checkbox"/> Hands on Activities | <input type="checkbox"/> Peer Tutors | <input type="checkbox"/> Independent Study |
| <input type="checkbox"/> Audio Taped Tests | <input type="checkbox"/> Individual Aide | <input type="checkbox"/> Word Banks | <input type="checkbox"/> Contracts |
| <input checked="" type="checkbox"/> Extended Time | <input type="checkbox"/> Manipulatives | <input type="checkbox"/> Visual Cues | <input type="checkbox"/> Mentorships |
| <input checked="" type="checkbox"/> Preferential Seating | <input type="checkbox"/> Flash Cards | <input type="checkbox"/> Key Words | <input type="checkbox"/> Telescoping |
| <input checked="" type="checkbox"/> Advanced Organizers | <input type="checkbox"/> A Notetaker | <input type="checkbox"/> Acceleration | |
| <input type="checkbox"/> Additional Practice | <input type="checkbox"/> Wait Time | <input type="checkbox"/> Tiered Assignments | |
| <input type="checkbox"/> Alternate Assessments | <input type="checkbox"/> Computation Aids | <input type="checkbox"/> Expansions | |
| <input type="checkbox"/> Visualize the Auditory | <input type="checkbox"/> Study Guide | <input type="checkbox"/> Learning Centers | |

COURSE OBJECTIVES

Trigonometry W/ Selected Topics

Total Objectives: 8

Course Objective #	Course Objective	Month
The student will		
435-01	The student will solve right triangles in an application setting. The student will find the value of the six trigonometric functions defined as circular functions given a point on the circumference of the circle or given a special angle. The student will analyze a new trigonometric formula and solve for an unknown value.	
Application		September
435-02	The student will develop a method for finding the arc length and area of a sector. The student will be able to convert between degree measure and radian measure and use radian measure to compute arc length and area. The student will sketch functions of the form $y=A(\sin \text{ or } \cos) Bx$ and to find the value of a periodic function with period p at $x + np$ given the value of the function at x and that n is an integer. The student will model periodic behavior by writing a sinusoidal function.	
Application		November
435-03	The student will identify if a relation is a function and state the domain and range of the relation when expressed in a numeric, graphic or symbolic form. The student will be able to identify various attributes of a line when the line is given in a numeric, graphic, or symbolic form. The student will, as a paper and pencil task, approximate the line of best fit for a scattergram. The student will also use technology to find the line of best fit. In either situation, the student will make a prediction based on the line.	
Application		December
435-04	The student will sketch functions by using transformations of elementary functions. Inversely, the student will write the symbolic function that models a graphed function. The student will graph inequalities where y is described as function of x and the function can be described as the transformation of an elementary function. Lastly, the student will identify the absolute extremum of a quadratic and make a representative sketch of the quadratic.	
Application		January
435-05	The student will determine the number of arrangements or selections possible using the (a) fundamental counting principle or (b) formulas developed from that concept or (c) by the construction of a tree diagram. The student will find the probability or odds of events involving the selection of a single object or multiple objects as associated with a hypergeometric distribution.	
Application		February
435-06	The student will calculate statistics and make graphs or plots that describe the central tendency and distribution of data. The student will solve equations by factoring or the use of logarithms. The student will classify series and sequences as arithmetic or geometric so as to find the sum of terms or to formulate the n th term. The student will classify a relationship as a direct or inverse variation so as to project other data values.	
Application		March
435-07	The student will determine if a function is one-to-one. The student will restrict the domain of a function given in either a numeric, graphed, or symbolic form to establish a one-to-one relationship. The student will express the inverse of a function in the same representation that the original function was expressed in. The student will evaluate expressions containing trigonometric functions and inverses of trigonometric functions using a reference graph.	
Application		April
435-08	The student will use trigonometric identities to find the value of trigonometric functions when given the value of other trigonometric functions. The student will deductively prove that a statement is an identity.	
Analysis		May