# Parent / Student Course Information

**MATHEMATICS**

## TRIGONOMETRY

*Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.*

**COURSE DESCRIPTION**
Trigonometry complements Algebra II by providing preparation for typical college mathematics courses below the level of calculus. The course offers a thorough treatment of trigonometric and circular functions. Graphs and properties of the six functions are presented in depth. Other topics include trigonometric equations, inverse trigonometric functions, identities, solutions of triangles, and applications of trigonometry**. Students who have passed Algebra II/Trigonometry (MA 3137) may not enroll in this course.**

**PREREQUISITE**
Algebra II

**OPTION FOR NEXT COURSE**
Mathematical Analysis

**REQUIRED STUDENT TEXTBOOK**
*Trigonometry, Eighth Edition*, Lial, Hornsby, and Schneider, Pearson/Prentice Hall (2005)

**RECOMMENDED CALCULATOR**
TI-83 Plus or TI-84 Plus

**Virginia Beach Instructional Objectives**
**Trigonometry (1 Semester) – MA3150**

| School Net Objective | Objective |
|---|---|
| | **Triangular and Circular Trigonometric Functions** |
| **MA.T.1.1** | The student will be able to identify the initial side, terminal side, and standard position of an angle. The student will be able to classify angles and recognize coterminal angles. **(SOL T.1)** |
| **MA.T.1.2** | The student will be able to determine the values and appropriate sign of the six trigonometric functions given a point on the terminal side of an angle in standard position. **(SOL T.1)** |
| **MA.T.1.3** | The student will be able to use properties of the unit circle and definitions of circular functions. **(SOL T.2)** |
| **MA.T.1.4** | The student will be able to use the unit circle to determine the value of the trigonometric functions and convert between degrees and radians. **(SOL T.3)** |
| **MA.T.1.5** | The student will be able to find the values of the trigonometric functions of the special angles and their related angles, given in degrees or radians, without a calculator. **(SOL T.3)** |
| **MA.T.1.6** | The student will be able to solve practical application problems involving arc length and area of a sector. **(SOL T.2, T.3)** |
| | **Inverse Trigonometric Functions** |
| **MA.T.2.1** | The student will be able to use the reference angle to express the six trigonometric functions of any angle in terms of a function of a positive acute angle. **(SOL T.4)** |
| **MA.T.2.2** | The student will be able to apply the cofunction identities to equivalent expressions. **(SOL T.4)** |
| **MA.T.2.3** | The student will be able to solve right triangles for the unknown parts. **(SOL T.4)** |
| | **Trigonometric Identities** |
| **MA.T.3.1** | The student will be able to verify and apply basic trigonometric identities. **(SOL T.5)** |
| | **Trigonometric Equations, Graphs, and Practical Problems** |
| **MA.T.4.1** | The student will be able to identify, create, and solve practical problems involving right triangles including problems involving vectors. **(SOL T.9)** |
| **MA.T.4.2** | The student will be able to solve practical problems involving linear and angular velocity. **(SOL T.9)** |
| **MA.T.4.3** | The student will be able to graph functions of the form $y = A \sin B(x - C) + D$ for each of the six trigonometric functions using a transformational approach and determine major characteristics such as domain range, amplitude, period, phase shift, vertical shift, and any necessary asymptotes. Given a graph, the student will be able to write an equation. **(SOL T.6)** |

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| **MA.T.4.4** | The student will be able to recognize the graph of an inverse trigonometric function and identify its domain and range. **(SOL T.7)** |
| **MA.T.4.5** | The student will be able to solve trigonometric equations and inequalities with a finite or infinite number of solutions as well as restricted domain solutions. **(SOL T.8)** |
| **MA.T.4.6** | The student will be able to apply the law of sines and the law of cosines to find unknown parts of a triangle and create and solve practical problems. **(SOL T.9)** |
| **MA.T.4.4** | The student will be able to calculate the area of a triangle given various parameters. **(SOL T.9)** |


VIRGINIA BEACH CITY PUBLIC SCHOOLS
AHEAD OF THE CURVE

**MISSION STATEMENT**
**The Virginia Beach City Public Schools, in partnership with the entire community, will empower every student to become a life-long learner who is a responsible, productive and engaged citizen within the global community.**

**DEPARTMENT OF CURRICULUM AND INSTRUCTION**
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