



RADNOR TOWNSHIP SCHOOL DISTRICT  
Course Overview  
Trigonometry and Discrete Math 05040442



### **General Information**

Prerequisite: Advanced Algebra 2 or teacher recommendation  
Length: Full Year  
Format: meets daily for one period

### **Course Description**

Trigonometry is a College Preparatory level course.

**College Preparatory level** courses will feature moderate pacing and workload with teacher guidance to assist in the mastery of the material. Students enrolled on this level should be seeking to satisfy college requirements/expectations of mathematics courses but not necessarily have an interest in pursuing math related college majors.

The goal of this course is to examine trigonometric concepts and application and explore appropriate discrete topics. Trigonometry will be taught using both a right triangle and unit circle approach. Probability, statistics, exponential and logarithmic functions, sequences and series, and as time allows, other topics in discrete math will be introduced. Many of them have applications in engineering, management, and the social sciences.

### **Course Objectives:**

This course highlights the following student skills:

1. To develop the ability to think mathematically.
2. To enhance problem solving ability.
3. To utilize technology appropriately.
4. To understand algebra as a study of the structure of the real and complex number systems.
5. To appreciate the usefulness of algebraic techniques.
6. To continue to understand the concept of function as a unifying concept in mathematics.
7. To develop algebraic skills and concepts as a foundation for subsequent study of mathematics.
8. To reason and communicate mathematically.
9. To represent situations which involve variable quantities with expressions, equations, and inequalities.
10. To challenge and expand the inquisitive and logical minds of the accelerated mathematics students.

### **Common Assessments:**

All students will take departmental midyear and final exams. The Radnor High School grading system and scale will be used to determine letter grades.

### **Major Units of Study:**

#### **MARKING PERIOD 1 – TOPICS**

#### **Review of Essential Algebra Skills**

1. Distance & Midpoint Formulas
2. Slope & Equations of Lines
3. Function Notation, Domain & Range
4. Factoring
5. Solving Equations & Inequalities
6. Addition & Subtraction of Rational Expressions
7. Complex Fractions
8. Equations w/Rational Expressions

### **Trigonometric Concepts**

9. Angles
10. Angle Relationships and Similar Triangles
11. Definitions of the Trigonometric Functions
12. Using the Definitions of the Trig Functions
13. Trigonometric Functions of Acute Angles
14. Trigonometric Functions of Non-Acute Angles
15. Finding Function Values Using a Calculator
16. Solving Right Triangles
17. Further Applications of Right Triangles

### **MARKING PERIOD 2 – TOPICS**

#### **Trigonometric Concepts (cont.)**

18. Radian Measure
19. Applications of Radian Measure
20. Circular Functions of Real Numbers
21. Linear and Angular Velocity
22. Graphs of the Sine and Cosine Functions
23. Translations of Graphs
24. Graphs of the Other Circular Functions
25. Basic Trigonometric Identities & Proofs

### **MARKING PERIOD 3 – TOPICS**

#### **Trigonometric Concepts (cont.)**

1. Sum and Difference Identities for Cosine
2. Sum and Difference Identities for Sine, Tangent
3. Double-Angle Identities
4. Half-Angle Identities
5. Inverse Trigonometric Functions
6. Trigonometric Equations I
7. Trigonometric Equations II
8. Equations Involving Inverse Trig Functions
9. Oblique Triangles and the Law of Sines
10. The Ambiguous Case of the Law of Sines
11. The Law of Cosines

### **MARKING PERIOD 4 – TOPICS**

#### **Algebra & Discrete Topics**

12. Exponential Functions
13. Logarithmic Functions
14. Evaluating Logarithms; Change of Base
15. Exponential and Logarithmic Equations
16. Complex Numbers
17. Sequences and Series

### ***Materials & Texts***

- Trigonometry Lial, et al – Addison Wesley – 7<sup>th</sup> edition
- Graphing Calculator, preferably TI-84 Plus

### ***Summer Assignment***

None