Trigonometry

RCAS Policies/Procedures:

Students will be required to follow all RCAS policies and procedures. To view the RCAS High School Student Handbook, click handbook.

Course Description:

This course includes the study of trigonometric functions as they relate to triangles and to circular functions, their graphs, the algebraic relationships between the functions, and an introduction to vectors.

Textbook:

CPM Pre-Calculus (just use the trigonometry material)

ISBN-13: 978-1-60328-004-4

Required Resources:

NA

"Limited Choice" Resources: (students will be asked to choose at least one title from this list)

NA

Student Choice:

Will student be asked to choose additional reading material from the classroom or school library?

No

Essential Questions:

- How do you solve a variety of triangle problems?
- What do radians and the unit circle represent?
- How do you use the unit circle to generate the graphs of sine and cosine?
- How do you use trigonometric functions and use trig identities to simplify expressions?
- How do you apply periodic functions to application problems to combine two periodic functions?
- What are the reciprocal functions including secant and cosecant?
- How do you use the unit circle and graphs to solve application problems?
- How do you use modeling of periodic functions to solve more complex situations?
- How do you use other trig formulas and identities to solve more complex trig equations?
- How do you model the motion of a spring using a combination of a sinusoidal and an exponential function?
- How do you use vectors to describe motion and use vector operations to solve real world problems?

Essential Learning Intentions:

- Use the Law of Sines and the Law of Cosines
- Use radians to measure angles
- Use the unit circle to find exact values of trig functions
- Graph various sinusoidal functions
- Define the reciprocal trigonometric functions: secant, cosecant, and cotangent
- Use identities to simplify and verify expressions
- Begin modeling using periodic functions
- Investigate reciprocals of functions, including secant and cosecant
- Solving trigonometric equations
- Solving triangles that have more than one solution
- Modeling periodic functions that have both a shift and a period other than 2
- Use the angle sum and difference formulas and double-angle formulas
- Use geometry to define and perform operations using vectors
- Write vectors in component form
- Use vectors to solve common physics and calculus problems
- Define and use the dot product for vectors
- Define the motion of an object using parametric equations

- Use parametric equations to solve common physics and calculus problems