

Options EHS Precalculus B		Scope and Sequence
Unit	Lesson	Objectives
Right Triangle and Circular Trigonometry		
Right Triangle Trigonometry		
		Use the Pythagorean theorem, and the trigonometric functions and their inverses to solve right triangles.
		Use special right triangle relationships to solve right triangles.
Solving for Side Lengths of Right Triangles		
		Write equations using trigonometric ratios that can be used to solve for unknown side lengths of right triangles.
		Solve for unknown side lengths of right triangles using trigonometric ratios.
		Apply trigonometric ratios to solve real-world problems.
Solving for Angle Measures of Right Triangles		
		Write equations that can be used to solve for unknown angles in right triangles.
		Solve for unknown angles of right triangles using inverse trigonometric functions.
		Apply inverse trigonometric functions to solve real-world problems.
Angles in Standard Position		
		Identify characteristics of angles in standard position.
		Determine angles that are coterminal.
Radian Measure		
		Convert between degree and radian measure.
		Use the definition of radian measure to calculate arc lengths, radii, and angle measures.
The Unit Circle		
		Find the sine, cosine, and tangent values of angle measures using the unit circle.
		Compare sine, cosine, and tangent values for angles having the same reference angle.

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	Reciprocal Trigonometric Functions	
		Solve right triangle trigonometry problems involving reciprocal trigonometric functions.
		Simplify expressions involving the six trigonometric functions using reciprocal relationships.
		Evaluate the six trigonometric functions for special angles.
	Unit Test	
Graphing Trigonometric Functions		
	Graphing Sine and Cosine	
		Analyze key features of sine and cosine functions from equations and graphs.
	Changes in Period and Phase Shift of Sine and Cosine Functions	
		Relate transformations of the graphs of the sine and cosine functions to the equation.
	Graphing Cosecant and Secant Functions	
		Analyze key features of secant and cosecant functions from equations and graphs.
	Graphing Tangent and Cotangent	
		Analyze key features of tangent and cotangent functions from equations and graphs.
	Trigonometric Inverses and Their Graphs	
		Graph inverse trigonometric functions
		Find principal values of inverse trigonometric functions
	Modeling with Periodic Functions	
		Model and solve real-world problems using periodic functions.
	Unit Test	
Trigonometry		
	Evaluating the Six Trigonometric Functions	

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		Evaluate the six trigonometric functions for angles in degrees or radians based on one or more given trigonometric function values.
		Evaluate the six trigonometric functions for angles in degrees or radians given a point on the terminal ray.
	Basic Trigonometric Identities	
		Identify and use reciprocal identities, quotient identities, Pythagorean identities, symmetry identities, and opposite-angle identities
	Verifying Trigonometric Identities	
		Use the basic trigonometric identities to verify other identities
		Find numerical values of trigonometric functions
	Sum and Difference Identities	
		Use the sum and difference identities for the sine, cosine, and tangent functions
	Double-Angle and Half-Angle Identities	
		Use the double- and half-angle identities for the sine, cosine, and tangent functions
	Solving Trigonometric Equations	
		Analyze key features of inverse trigonometric functions from equations and graphs.
		Evaluate inverse trigonometric functions over a specified domain.
		Solve trigonometric equations over a specified domain.
	Law of Sines	
		Apply the law of sines to solve mathematical and real-world problems.
		Determine whether a triangle has zero, one, or two solutions using the ambiguous case of the law of sines.
	Law of Cosines	
		Apply the law of cosines to solve mathematical and real-world problems.

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	Law of Sines and Law of Cosines — a Deeper Look	
		Use right triangle trigonometry to develop and prove the Law of Sines.
		Use right triangle trigonometry to develop and prove the Law of Cosines.
		Use the Law of Sines to solve problems.
		Use the Law of Cosines to solve problems.
	Unit Test	
Vectors		
	Geometric Vectors	
		Find equal, opposite, and parallel vectors
		Add and subtract vectors geometrically
	Algebraic Vectors	
		Find ordered pairs that represent vectors
		Add, subtract, multiply, and find the magnitude of vectors algebraically.
	Vectors and Parametric Equations	
		Write vector and parametric equations of lines
		Graph parametric equations
	Polar Coordinates	
		Convert points and equations from polar to rectangular coordinates and vice versa
	Graphs of Polar Equations	
		Graph polar equations and determine the maximum r-value and the symmetry of a graph
	Unit Test	
Conics and Analytic Geometry		

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	Conic Sections: Parabolas	
		Use and determine the standard form of the equation of the parabola.
		Solve applied problems involving parabolas.
	Equations of Ellipses	
		Identify the center, foci, directrix, and vertices of an ellipse from an equation or graph.
		Write the equation of an ellipse from a given graph or information about its center, foci, directrix, or vertices.
	Equations of Hyperbolas	
		Determine the foci, directrices, vertices, and asymptotes of a hyperbola with center at the origin from an equation or graph.
		Graph a hyperbola with center at the origin from a given equation.
		Write the equation of a hyperbola with center at the origin from a given graph or information about its foci, directrices, or vertices.
	Unit Test	
Sequences and Series		
	Arithmetic Sequences	
		Find the common difference of an arithmetic sequence.
		Determine if a sequence is arithmetic.
		Apply the formula of an arithmetic sequence.
		Find the terms of an arithmetic sequence.
	Geometric Sequences	
		Find the common ratio of a geometric sequence.
		Determine if a sequence is geometric.
		Apply the formula of a geometric sequence.

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		Find terms of a geometric sequence.
	Summation Notation	
		Convert between series in summation notation and expanded form.
		Evaluate a summation by expanding it.
	Arithmetic Series	
		Solve problems using the formula for the sum for an arithmetic series.
	Finite Geometric Series	
		Solve problems using the formula for the sum of a finite geometric series.
	Infinite Geometric Series	
		Find a partial sum of an infinite geometric series.
		Determine if an infinite geometric series converges.
		Evaluate the sum of an infinite geometric series.
	Unit Test	
Cumulative Exam		
	Cumulative Exam Review	
	Cumulative Exam	