Standard ID	Standard Text	Edgenuity Lesson Name
HSF	Functions	
HSF-BF	Building Functions	
HSF-BF.B	Build new functions from existing functions.	
HSF-BF.B.3	Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	
		General Form of Sine and Cosine
		Graphing Cosecant and Secant Functions
		Graphing Sine and Cosine Functions
		Graphing Tangent and Cotangent
HSF-IF	Interpreting Functions	
HSF-IF.B	Interpret functions that arise in applications in terms of the context.	
HSF-IF.B.4	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.	
		General Form of Sine and Cosine
		Graphing Sine and Cosine Functions
HSF-IF.C	Analyze functions using different representations.	
HSF-IF.C.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.	
HSF-IF.C.7e	Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	
		General Form of Sine and Cosine
		Graphing Cosecant and Secant Functions
		Graphing Sine and Cosine Functions
		Graphing Tangent and Cotangent
HSF-TF	Trigonometric Functions	
HSF-TF.A	Extend the domain of trigonometric functions using the unit circle.	
HSF-TF.A.3	(+) Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4 and π/6, and use the unit circle to express the values of sine, cosines, and tangent for π-x, π+x, and 2π-x in terms of their values for x, where x is any real number.	
		Angles and Trigonometric Functions
		Trigonometric Difference Identities
		Trigonometric Double Angle Identities

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HSF-TF.A.3	(+) Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4 and π/6, and use the unit circle to express the values of sine, cosines, and tangent for π-x, π+x, and 2π-x in terms of their values for x, where x is any real number. *(cont'd)*	
		Trigonometric Half Angle Identities
		Trigonometric Sum Identities
HSF-TF.A.4	(+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	
		Angles and Trigonometric Functions
HSF-TF.B	Model periodic phenomena with trigonometric functions.	
HSF-TF.B.5	Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	
		Modeling with Periodic Functions
HSF-TF.B.6	(+) Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.	
		Inverse Trigonometric Functions
		Solving Trigonometric Equations
HSF-TF.B.7	(+) Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.	
		Solving Trigonometric Equations
HSF-TF.C	Prove and apply trigonometric identities.	
HSF-TF.C.8	Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find sin(θ), cos(θ), or tan(θ) given sin(θ), cos(θ), or tan(θ) and the quadrant of the angle.	
		Angles and Trigonometric Functions
HSF-TF.C.9	(+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	
		Trigonometric Difference Identities
		Trigonometric Double Angle Identities
		Trigonometric Sum Identities
HSG	Geometry	
HSG-GMD	Geometric Measurement and Dimension	
HSG-GMD.B	Visualize the relation between two-dimensional and three-dimensional objects.	
HSG-GMD.B.4	Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	
		Conic Sections
HSG-GPE	Expressing Geometric Properties with Equations	
HSG-GPE.A	Translate between the geometric description and the equation for a conic section.	
HSG-GPE.A.1	Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	
		Conic Sections

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HSG-GPE.A.2	Derive the equation of a parabola given a focus and directrix.	
		Conic Sections
		Parabolas
HSG-GPE.A.3	(+) Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.	
		Equations of Ellipses
		Equations of Hyperbolas
		Equations of Hyperbolas (continued)
HSG-SRT	Similarity, Right Triangles, and Trigonometry	
HSG-SRT.C	Define trigonometric ratios and solve problems involving right triangles.	
HSG-SRT.C.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	
		Special Right Triangles
		Trigonometric Ratios
HSG-SRT.C.7	Explain and use the relationship between the sine and cosine of complementary angles.	
		Trigonometric Ratios
HSG-SRT.C.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	
		Solving for Angle Measures of Right Triangles
		Solving for Side Lengths of Right Triangles
		Triangle Classification Theorems
HSG-SRT.D	Apply trigonometry to general triangles.	
HSG-SRT.D.9	(+) Derive the formula A = ½absin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	
		Area and Perimeter of Triangles
HSG-SRT.D.10	(+) Prove the Laws of Sines and Cosines and use them to solve problems.	
		Law of Cosines
		Law of Sines
HSG-SRT.D.11	(+) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).	
		Law of Cosines
		Law of Sines
HSN	Number and Quantity	
HSN-CN	The Complex Number System	
HSN-CN.A	Perform arithmetic operations with complex numbers.	

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HSN-CN.A.1	Know there is a complex number i such that $i^2 = -1$, and every complex number has the form a + bi with a and b real.	
		Complex Numbers Performing Operations with Complex Numbers
HSN-CN.A.2	Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	
		Performing Operations with Complex Numbers
HSN-CN.A.3	(+) Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.	
		Multiply and Divide Complex Numbers Performing Operations with Complex Numbers Polar Form of Complex Numbers
HSN-CN.B	Represent complex numbers and their operations on the complex plane.	
HSN-CN.B.4	(+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	
		Graphing Polar Equations Polar Form of Complex Numbers
HSN-CN.B.5	(+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation. For example, $(-1 + \sqrt{3}i)^3 = 8$ because $(-1 + \sqrt{3}i)$ has modulus 2 and argument 120°.	
		Add and Subtract Complex Numbers Multiply and Divide Complex Numbers
HSN-CN.B.6	(+) Calculate the distance between numbers in the complex plane as the modulus of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	
		Distance and Midpoints in the Complex Plane
HSN-VM	Vector and Matrix Quantities	
HSN-VM.A	Represent and model with vector quantities.	
HSN-VM.A.1	(+) Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v, |v|, ||v||, v).	
		Vectors and Their Components

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HSN-VM.A.2	(+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	Vectors and Their Components
HSN-VM.A.3	(+) Solve problems involving velocity and other quantities that can be represented by vectors.	Applying Vectors in the Plane Dot Product and Work
HSN-VM.B	Perform operations on vectors.	
HSN-VM.B.4	(+) Add and subtract vectors.	
HSN-VM.B.4a	Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.	Performance Task: Vector Operations Vector Addition and Subtraction
HSN-VM.B.4b	Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	Performance Task: Vector Operations Vector Addition and Subtraction
HSN-VM.B.4c	Understand vector subtraction v - w as v + (-w), where -w is the additive inverse of w, with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.	Performance Task: Vector Operations Vector Addition and Subtraction
HSN-VM.B.5	(+) Multiply a vector by a scalar.	
HSN-VM.B.5a	Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as c(vx, vy) = (cvx, cvy).	Vectors and Their Components
HSN-VM.B.5b	Compute the magnitude of a scalar multiple cv using $\|\|cv\|\| = \|c\|v$. Compute the direction of cv knowing that when $\|c\|v \neq 0$, the direction of cv is either along v (for $c > 0$) or against v (for $c < 0$).	Vectors and Their Components
MP.	Mathematical Practices	
MP.1	Make sense of problems and persevere in solving them.	Applying Vectors in the Plane Dot Product and Work Performance Task: Vector Operations
MP.2	Reason abstractly and quantitatively.	Performance Task: Vector Operations

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MP.3	Construct viable arguments and critique the reasoning of others.	Trigonometric Difference Identities Trigonometric Half Angle Identities Trigonometric Sum Identities
MP.4	Model with mathematics.	Modeling with Periodic Functions
MP.5	Use appropriate tools strategically.	Equations of Ellipses Equations of Hyperbolas Equations of Hyperbolas (continued) Parabolas
MP.6	Attend to precision.	Solving for Angle Measures of Right Triangles Solving for Side Lengths of Right Triangles Trigonometric Difference Identities Trigonometric Double Angle Identities Trigonometric Half Angle Identities Trigonometric Sum Identities
MP.7	Look for and make use of structure.	Performing Operations with Complex Numbers Polar Form of Complex Numbers
MP.8	Look for and express regularity in repeated reasoning.	General Form of Sine and Cosine Graphing Cosecant and Secant Functions Graphing Sine and Cosine Functions Graphing Tangent and Cotangent Special Right Triangles