



CW High School

Advanced Math A

1. Functions and Math Models (16.67%)

Learning Targets

1.1 I can make connections between the algebraic equation or description for a function, its name, and its graph.

Learning Target	Descriptor	Definition
4	Proficient	I can make connections between the algebraic equation or description for a function, its name, and its graph.
3	Developing	I can interpolate and extrapolate values from a graph and equation describing a graph.
2	Basic	I can state the locations of minimums, maximums, intercepts, asymptotes, and the domain and range of functions.
1	Minimal	I can complete a table for a function from data and equations, then plot points to form a graph.
0	No Evidence	No evidence shown.

1.2 I can recognize the shape of a function from its equation, dialate it, translate it, and graph its absolute value.

Learning Target	Descriptor	Definition
4	Proficient	I can recognize the shape of a function from its equation, dialate it, translate it, and graph its absolute value.
3	Developing	I can shift a graph horizontally and dialate it.
2	Basic	I can shift a graph vertically.
1	Minimal	I can sketch graphs of from recalling their parent graphs.
0	No Evidence	No evidence shown.

1.3 I can use composite functions to prove two functions are inverses.

Learning Target	Descriptor	Definition
4	Proficient	I can use composite functions to prove two functions are inverses.
3	Developing	I can write a function that represents the composition of two functions.
2	Basic	I can find the inverse of a function and graph the function and its inverse on the same graph.
1	Minimal	I can analyze a composite function at an x-value.
0	No Evidence	No evidence shown.

1.4 I can use a graphing calculator to completely analyze a function. (intercepts, min and max, intersection of two graphs, calculate a value)



CW High School

Advanced Math A

Learning Target	Descriptor	Definition
4	Proficient	I can use a graphing calculator to completely analyze a function. (intercepts, min and max, intersection of two graphs, calculate a value)
3	Developing	I can locate any maximum and minimum values of a function on a graphing calculator to 4 decimal places.
2	Basic	I can use a graphing calculator to locate x and y intercepts of a function to 4 decimal places.
1	Minimal	I can graph a function on a calculator and adjust the window to see all important features.
0	No Evidence	No evidence shown.

2. Trigonometric Functions (16.67%)

Learning Targets

2.1 I can sketch any angle in degrees, minutes, and seconds from standard position, state its reference angle, and find two co-terminal angles for it.

Learning Target	Descriptor	Definition
4	Proficient	I can sketch any angle in degrees, minutes, and seconds from standard position, state its reference angle, and find two co-terminal angles for it.
3	Developing	I can sketch a reference angle for any angle on a unit circle from.
2	Basic	I can find a positive and negative coterminal angle for any angle -360 to $+360$.
1	Minimal	I can sketch any $+$ and $-$ angle on a unit circle from -360 to $+360$.
0	No Evidence	No evidence shown.

2.2 I can find the values of the six trigonometric (trig) functions for any point or common angle on the unit circle and apply them to simplify expressions.

Learning Target	Descriptor	Definition
4	Proficient	I can find the values of the six trigonometric (trig) functions for any point or common angle on the unit circle and apply them to simplify expressions.
3	Developing	I can find the exact values of sine, cosine, and tangent for any point or common angle in quadrants I and II.
2	Basic	I can use the side ratios for 45-45-90 and 30-60-90 triangles to state the exact sine and cosine of any common angle in quadrant I.
1	Minimal	I can plot any point on the coordinate system and find the sine and cosine of the reference angle created.



CW High School

Advanced Math A

Learning Target	Descriptor	Definition
0	No Evidence	No evidence shown.

2.3 I can find any angle described by any of the trig functions and its quadrant by utilizing an inverse trig operation and the periodicity of trig functions.

Learning Target	Descriptor	Definition
4	Proficient	I can find any angle described by any of the trig functions and its quadrant by utilizing an inverse trig operation and the periodicity of trig functions.
3	Developing	I can find the inverse of any of the six trig functions and explain what the answer means.
2	Basic	I can use the inverse trig functions on a calculator to find the inverse of any of the six trig functions.
1	Minimal	I can use a calculator to find the inverse of sine, cosine, and tangent.
0	No Evidence	No evidence shown.

2.4 I can draw a figure to represent a given problem and use the appropriate right triangle trig to solve for any required angle or side.

Learning Target	Descriptor	Definition
4	Proficient	I can draw a figure to represent a given problem and use the appropriate right triangle trig to solve for any required angle or side.
3	Developing	I can apply the six trig functions to solve right triangle problems for any side or angle..
2	Basic	I can use right triangle trig to solve for an unknown side where division by the sine, cosine, or tangent of the angle is necessary.
1	Minimal	I can use right triangle trig to solve for an unknown side of a right triangle where multiplication is necessary.
0	No Evidence	No evidence shown.

3. Applications of Trigonometric and Circular Functions (16.65%)

Learning Targets

3.1 I can write an equation to describe any periodic function using either radians or degrees and sketch any periodic function from an equation.

Learning Target	Descriptor	Definition
4	Proficient	I can write an equation to describe any periodic function using either radians or degrees and sketch any periodic function from an equation.
3	Developing	I can sketch the graph of a sine or cosine function, state its amplitude, sinusoidal axis, vertical and phase shift given an equation using radians.



CW High School

Advanced Math A

Learning Target	Descriptor	Definition
2	Basic	I can sketch the graph of a sine or cosine function, state its amplitude, sinusoidal axis, vertical and phase shift given an equation using degrees.
1	Minimal	I can sketch the graph of a sine, cosine, or tangent graph using degrees.
0	No Evidence	No evidence shown.

3.2 I can evaluate trigonometric functions for both dependent and independent (x and y) variables using the principal value and knowledge of the periodicity of sine and cosine functions to find other values.

Learning Target	Descriptor	Definition
4	Proficient	I can evaluate trigonometric functions for both dependent and independent (x and y) variables using the principal value and knowledge of the periodicity of sine and cosine functions to find other values.
3	Developing	I can find a principal x-value for a periodic function's y-value algebraically.
2	Basic	I can find an x-value for a given y value of a periodic function using intercepts on a graphing calculator.
1	Minimal	I can substitute values in for the dependent variable (x) using both degrees and radians to locate specific y-values in a periodic function.
0	No Evidence	No evidence shown.

3.3 I can state the exact value of any of the six trig functions using degrees and radians for any positive or negative common angle.

Learning Target	Descriptor	Definition
4	Proficient	I can state the exact value of any of the six trig functions using degrees and radians for any positive or negative common angle.
3	Developing	I can state the exact value of all of the six trig functions using degrees and radians for any positive common angle.
2	Basic	I can convert any degree measure to radians and vice versa.
1	Minimal	I can correlate common angles in degrees to their radian measure.
0	No Evidence	No evidence shown.

3.4 I can identify or measure the appropriate values and generate a mathematical model to represent periodic situations in a lab setting or in real-world written problems, then analyze that function for specific x and y values to test its validity.

Learning Target	Descriptor	Definition
4	Proficient	I can identify or measure the appropriate values and generate a mathematical model to represent periodic situations in a lab setting or in real-world written problems, then analyze that function for specific x and y values to test its validity.



CW High School

Advanced Math A

Learning Target	Descriptor	Definition
3	Developing	I can identify or measure the appropriate values, sketch and generate mathematical models to represent periodic situations in a lab setting and written problems.
2	Basic	I can accurately measure period, amplitude, sinusoidal axis, and any phase shift in a lab setting, then sketch a graph of the motion.
1	Minimal	I can accurately identify period, amplitude, sinusoidal axis, and any phase shift in a real-world periodic written problem, then sketch a graph of the motion.
0	No Evidence	No evidence shown.

4. Properties of the Trigonometric Functions (16.67%)

Learning Targets

4.1 I can prove each of the Pythagorean Properties and solve each of them for a different function.

Learning Target	Descriptor	Definition
4	Proficient	I can prove each of the Pythagorean Properties and solve each of them for a different function.
3	Developing	I can correctly solve Pythagorean Properties for a different function.
2	Basic	I can correctly state the three Pythagorean properties.
1	Minimal	I can correctly state the reciprocal properties.
0	No Evidence	No evidence shown.

4.2 I can use reciprocal, quotient, and Pythagorean properties to produce simplified and transformed trig expressions.

Learning Target	Descriptor	Definition
4	Proficient	I can use reciprocal, quotient, and Pythagorean properties to produce simplified and transformed trig expressions.
3	Developing	I can transform trig expressions where multiplication by a conjugate is necessary.
2	Basic	I can transform trig expressions involving addition and subtraction of fractional expressions by utilizing a common denominator.
1	Minimal	I can transform a trig expression into another that involves multiplication and distribution by re-writing all functions in terms of sine and cosine.
0	No Evidence	No evidence shown.

4.3 I can write a general solution to a trig equation using "arc" notation and use it to find multiple values of where a function is equal to a particular y value.



 Edit page

CW High School

Advanced Math A

Learning Target	Descriptor	Definition
4	Proficient	I can write a general solution to a trig equation using "arc" notation and use it to find multiple values of where a function is equal to a particular y value.
3	Developing	I can solve a trig expression for values of x where a function is equal to a value using "arcs."
2	Basic	I can compute "arcs" of all six trig functions.
1	Minimal	I can compute "arcs" of sine, cosine, and tangent functions.
0	No Evidence	No evidence shown.

4.4 I can use various rules to transform trig expressions from sums to products and vice versa and use composite arguments to simplify trig expressions using common angles.

Learning Target	Descriptor	Definition
4	Proficient	I can use various rules to transform trig expressions from sums to products and vice versa and use composite arguments to simplify trig expressions using common angles.
3	Developing	I can transform a product of two trig functions as a sum or difference.
2	Basic	I can transform a sum of two trig functions into a product.
1	Minimal	I can use a composite argument to rewrite sine, cosine or tangent of angles that are sums or differences of common angle. ie..75 degrees.
0	No Evidence	No evidence shown.

5. Trigonometric Functions and Angular Velocity (16.67%)

Learning Targets

5.1 I can find linear and angular velocities at any location on single rotating objects and convert back to revolutions per unit of time.

Learning Target	Descriptor	Definition
4	Proficient	I can find linear and angular velocities at any location on single rotating objects and convert back to revolutions per unit of time.
3	Developing	I can find the linear velocity anywhere on a rotating object and convert units as necessary.
2	Basic	I can recognize that the angular velocity on a rotating object is always the same, but the linear velocity increases as radius increases.
1	Minimal	I can convert angular velocities from revolutions or degrees to radians per unit of time.
0	No Evidence	No evidence shown.

5.2 I can find the linear and angular velocities anywhere on a system of two or more rotating objects that are connected.



 Edit page

CW High School

Advanced Math A

Learning Target	Descriptor	Definition
4	Proficient	I can find the linear and angular velocities anywhere on a system of two or more rotating objects that are connected.
3	Developing	I can calculate the angular velocities of two rotating objects by using their common linear velocity.
2	Basic	I can recognize that the angular velocities of two rotating objects hooked together will be different.
1	Minimal	I can recognize that the linear velocities of the edges of two rotating objects are the same.
0	No Evidence	No evidence shown.

5.3 I can identify or measure the appropriate values to calculate the angular and linear velocities of rotating objects in a lab setting or in real-world written problems, and write sinusoidal equations to represent the motion.

Learning Target	Descriptor	Definition
4	Proficient	I can identify or measure the appropriate values to calculate the angular and linear velocities of rotating objects in a lab setting or in real-world written problems, and write sinusoidal equations to represent the motion.
3	Developing	I can link two rotating objects together using my measurements and calculate angular and linear velocities.
2	Basic	I can use my measurements to calculate angular and linear velocities on a single rotating object.
1	Minimal	I can measure and record the pertinent information in a lab problem dealing with a rotating object..
0	No Evidence	No evidence shown.

6. Triangles and Vectors (16.67%)

Learning Targets

6.1 I can compute the side length or angle measure of a triangle using the law of sines where an angle and opposite side are known.

Learning Target	Descriptor	Definition
4	Proficient	I can compute the side length or angle measure of a triangle using the law of sines where an angle and opposite side are known.
3	Developing	I can use the law of sines to find a missing angle if all angles are known to be less than 90 degrees.
2	Basic	I can use the law of sines to find a side length
1	Minimal	I can identify what type of triangle can be solved using the law of sines.
0	No Evidence	No evidence shown.

6.2 I can apply the law of cosines to solve a triangle given two sides and an included angle or all three sides of the triangle.



CW High School

Advanced Math A

Learning Target	Descriptor	Definition
4	Proficient	I can apply the law of cosines to solve a triangle given two sides and an included angle or all three sides of the triangle.
3	Developing	I can use the law of cosines to find a missing angle.
2	Basic	I can use the law of cosines to find a side length
1	Minimal	I can identify what type of triangle can be solved using the law of cosines.
0	No Evidence	No evidence shown.

6.3 I can select the appropriate technique and calculate the other side and angle measures of any triangle when given SSS, SAS, ASA, AAS, or SSA, or a right triangle and find the area of the triangle or complex region by breaking it into triangles.

Learning Target	Descriptor	Definition
4	Proficient	I can select the appropriate technique and calculate the other side and angle measures of any triangle when given SSS, SAS, ASA, AAS, or SSA, or a right triangle and find the area of the triangle or complex region by breaking it into triangles.
3	Developing	I can compute any angle or side length of a triangle given any of three variables and find the area of a triangle using Hero's Formula.
2	Basic	I can use the area of a triangle formula knowing SAS...
1	Minimal	I can identify what type of triangle is described. ie..SSS,ASA, right etc.
0	No Evidence	No evidence shown.

6.4 I can find the resultant of two vectors by creating a diagram, using triangle trigonometry, and by adding vector components.

Learning Target	Descriptor	Definition
4	Proficient	I can find the resultant of two vectors by creating a diagram, using triangle trigonometry, and by adding vector components.
3	Developing	I can compute x and y components of any vector.
2	Basic	can find an unknown angle in a vector diagram and calculate the length and direction of a resultant.
1	Minimal	I can sketch a diagram to describe the addition of two vectors and their resultant.
0	No Evidence	No evidence shown.

Submitted on 2/3/2022 by Wendy Weaver