Collaborative Team: Pre-Calculus
Unit #: Chapter 1
Essential Standard: Fundamentals

What is the Learning Target or Essential Question?	What Level of Thinking Does it Involve? Depth of Knowledge (DOK 1- 4)	How will you formatively assess this learning target or response to your essential question?
I can write between interval and inequality notation.	DOK 3	$(1, 4] = 1 < x \leq 4$
I can factor difference of squares.	DOK 3	$x^2 - 25$
I can factor trinomials.	DOK 3	$2x^2 - x - 3$
I can write equations of circles in standard form.	DOK 3	$x^2 + y^2 + 2x - 6y - 15 = 0$
I can identify the center and radius of a circle from the equation.	DOK 1	$(x + 1)^2 + (y - 3)^2 = 25$

Unit #: Chapter 2
Essential Standard: Functions

I can evaluate function notation.	DOK 2	$g(x) = 2x^2 - 5x - 3$ Find g(-1)
I can evaluate piecewise functions.	DOK 2	$f(x) = \begin{cases} 2x - 10 & 0 \leq x < 50 \\ x + 30 & 50 \leq x \leq 150 \end{cases}$ Find f(83)
I can evaluate a difference quotient.	DOK 2	$f(x) = 2x^2 - 5x - 3$ Find $\frac{f(x+h) - f(x)}{h}$
I can determine the domain of a function.	DOK 2	$f(x) = e^x \text{ and } g(x) = 2x^2 - 5x - 3$ Find the Domain of f(x) and g(x)

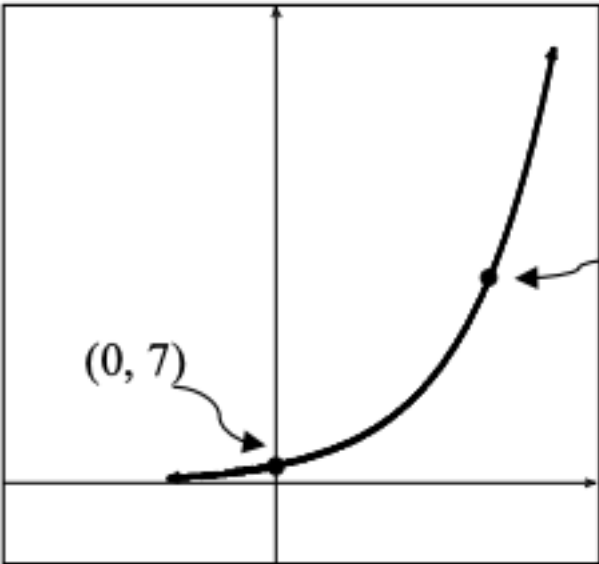|		
I can graph piecewise-defined functions.	DOK 2	$f(x) = \begin{cases} 2x-10 & 0 \le x < 50 \\ x+30 & 50 \le x \le 150 \end{cases}$ Graph f(x)
I can shift relations vertically and horizontally both algebraically and graphically.	DOK 3	$y = 2x^2$ Write the equation of the translation of y 2 units left and down 4 units
I can reflect relations both algebraically and graphically.	DOK 3	$y = 2x^2$ Write the equation of the translation of y reflected around the y-axis
I can perform nonrigid transformation both algebraically and graphically.	DOK 3	$y = 2x^2$ Write the equation of the translation of y stretched by a factor of 3.
I can add, subtract, multiply and divide functions.	DOK 2	Given $f(x) = 3x + 1$ and $g(x) = 4x - 6$ Find the following: $(f + g)(x)$, $(g - f)(x)$, $(f \cdot g)(-3)$ and $(g/f)(5)$
I can find the composition of one function with another function.	DOK 3	$f(x) = e^x$ and $g(x) = 2x^2 - 5x - 3$ Find f(g(1))
I can find the inverse of functions algebraically.	DOK 2	$g(x) = 2x^2 - 5x - 3$ Find $g^{-1}(x)$

Unit #: Chapter 3
Essential Standard: Polynomial and Rational Functions

I can determine the ending behavior of a graph.	DOK 2	$g(x) = 2x^2 - 5x - 3$ Determine the ending behavior
I can write an equation to a polynomial graph.	DOK 3	 Write a possible formula for the graph.
I can find the rational zeros of a polynomial function.	DOK 3	$g(x) = 3x^3 - 11x^2 + 17x + 7$ Find all zeros of g(x)
I can find horizontal and vertical asymptotes of graphs of rational functions.	DOK 3	$f(x) = \dfrac{2x + 1}{x^2 - 1}$ Find all asymptotes of f(x)

Unit #: Chapter 4
Essential Standard: Exponential and logarithmic functions

I can find exponential functions given a graph.	DOK 3	 (2, 85.75) (0, 7) Find an exponential equation to represent the graph.
I can evaluate logarithmic functions with base a and natural logarithmic functions.	DOK 2	$\ln(3x + 5) = 3$
I can use exponential and logarithmic functions to model and solve real-life problems.	DOK 4	A bank account earns a continuous interest rate of 6%. If $5,000 is deposited into the account: a. Find a formula for B(t), the balance in the account in t years. b. When will the balance reach $50,000? Give an exact answer and then round to the nearest tenth of a year.

Unit #: Chapter 5
Essential Standard: The Unit Circle

I can find values of trigonometric functions.	DOK 2	Find the exact value of the other five trigonometric functions of θ if $\cos \theta$ = -3/5 and θ is in Quadrant III
I can use the fundamental trigonometric identities.	DOK 3	Find the exact value of: $$\sin\left(\cos^{-1}\left(-\frac{1}{2}\right)\right)$$
I can graph transformations of the six trigonometric curves.	DOK 3	Identify the midline, amplitude, period, horizontal shift, and asymptotes, when appropriate of y = 4cos (3x − π)

Unit #: Chapter 6
Essential Standard: Right Triangle Trigonometry

I can convert between radians and degree measure.	DOK 2	Convert 210° to radians.
I can solve triangles using trigonometric ratios.	DOK 2	Solve the triangle. Round answers to the nearest tenth. A = 25°, b = 2, c = 5
I can solve applications using right triangle trigonometry.	DOK 4	From a point on level ground 135 feet from the base of a tower, the angle of elevation of the top of the tower is 57.3°. Approximate the height of the tower rounded to the nearest foot.

I can apply the law of sines.	DOK 4		From a point on level ground 135 feet from the base of a tower, the angle of elevation of the top of the tower is 57.3°. Approximate the height of the tower rounded to the nearest foot.
I can apply the law of cosines.	DOK 4		The angle at one corner of a triangular plot of ground is 73.7° and the sides that meet at this corner are 175 feet and 150 feet long. Approximate the length of the third side rounded to the nearest foot.

Unit #: Chapter 7
Essential Standard: Trigonometric Identities and Equations

I can establish trigonometric identities.	DOK 4	$$(\sin x + \cos x)^2 = 1 + \sin(2x)$$ Verify
I can solve basic trigonometric equations. I can solve trigonometric equations involving identities. I can solve trigonometric equations involving identities. I can use sum and difference formulas to find exact values.	DOK 3	See Final Review #31 For each equation, find the solutions: i. On the interval $[0, 2\pi)$ give exact answers. ii. On the interval $[0, 2\pi)$ give approximate answers rounded to 4 decimal places. iii. All real solutions in exact form. a. $2\sin\theta - 3\sin\theta\cos\theta = 0$ b. $2\sin^2 x + \sin x - 1 = 0$ c. $\sin(2x) - \sin x - 2\cos x = -1$ d. $4\tan x \sin x = -\sin x$

Unit #: Chapter 8
Essential Standard: Polar Coordinates and Equations

I can plot points of polar coordinates.	DOK 2	Plot the point $\left(5, \frac{4\pi}{3}\right)$
I can convert between polar and rectangular coordinates.	DOK 2	Convert the point $\left(5, \frac{4\pi}{3}\right)$ to exact Cartesian coordinates.
I can graph polar equations.	DOK 2	Sketch r = 4cos 2θ

Unit #: Chapter 12
Essential Standard: Sequences and Series

I can determine terms in a sequence. I can write sums using sigma notation. I can evaluate sums in sigma notation.	DOK 2	Complete the problems which involve sequences and sums. a. Give the first four terms of the sequence with terms given by $a_n = \frac{(-1)^n}{n^2 + 1}$ b. Write a formula for the nth term of the sequence with the first few terms given by: 1, 3, 5, 7,... c. Evaluate $\sum_{n=0}^{3} n(n+1)$
I can expand $(a + b)^n$	DOK 3	expand $(2x + 3y^2)^4$ and simplify completely.