Unit 9: Represent and Apply Trigonometry

	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Interpret key features(F.IF.4)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesizing • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Identify and compare key features of two functions represented in **all** of the following ways • algebraically • graphically • tables • in context	Identify and compare key features of two functions represented in **three** of the following ways • algebraically • graphically • tables • in context	Identify and compare key features of two functions represented in **two** of the following ways • algebraically • graphically • tables • in context	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Average rate of change (F.IF.6)		Calculate the average rate of change over a given interval **and explain the meaning in context.**	**Calculate** the average rate of change over a given interval	**Describe** the average rate of change over a given interval	
Graph exponential and logarithmic functions; key features(F.IF.7e)		Graph trigonometric functions and interpret all related key features of a graph **in context of a real world situation** • Asymptotes • Period • Midline • amplitude	**Graph** trigonometric functions and identify all related key features of a graph • asymptotes • period • midline • amplitude	Given the graph or equation of trigonometric functions, identify all related key features of a graph • asymptotes • period • midline • amplitude	
Compare functions from different representations (F.IF.9)		Compare key features of two functions represented • algebraically • graphically • numerically in tables • verbal descriptions Key features include: • intercepts • domain/range • increasing or decreasing • **positive or negative** • **symmetries** • **end behavior**	Compare key features of two functions represented • algebraically • graphically • numerically in tables • verbal descriptions Key features include: • intercepts • domain/range • **increasing or decreasing**	Compare key features of two functions represented • algebraically • graphically • numerically in tables • verbal descriptions Key features include: • intercepts • domain/range	
Transformations using k (F.BF.3)		Identify the effect on a graph by replacing f(x) with **more than two** transformations: $f(x) + k$, $a\,f(x)$, $f(bx)$, $f(x + h)$ for specific positive and negative values of the constants a, b, h, and k Write a function given **more than two transformations.**	Identify the effect on a graph by replacing f(x) with **two** transformations: $f(x) + k$, $a\,f(x)$, $f(bx)$, $f(x + h)$ for specific positive and negative values of the constants a, b, h, and k Write a function given **two transformations.**	Identify the effect on a graph by replacing f(x) with a **single** transformation: $f(x) + k$, $a\,f(x)$, $f(bx)$, $f(x + h)$ for specific positive and negative values of the constants a, b, h, and k Write a function given **a transformation**.	
Model with trigonometric functions (F.TF.5)		Given a specified amplitude, frequency, and midline for a real world situation, **create a sine, cosine and/or tangent function**	Given the sine, cosine or tangent function for a real world situation, identify the amplitude, frequency **and** midline	Given the sine, cosine or tangent function for a real world situation, identify the amplitude, frequency **or** midline	

Inverse construction (F.TF.6)		**Construct an invertible trigonometric function by restricting the domain so that the function is always increasing or decreasing**	**Identify a domain that will allow construction of the inverse of a trigonometric function, because the function would be always increasing or decreasing**	Given a portion of a trigonometric graph, identify if that part of the graph is invertible	
Inverse functions to solve (F.TF.7)		Use inverse functions to solve trigonometric equations with restricted and unrestricted domains **and interpret the solutions in context of the situation**	Use inverse functions to solve trigonometric equations with restricted **and unrestricted** domains	Use inverse functions to solve trigonometric equations with **restricted domains**	