Functions

Instructional Focus: Compose and transform functions

	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Identify and Find Transfor-mations (F.BF.3)	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 the effect on a graph by replacing f(x) with more than two transformations: $f(x) + k$, $k\,f(x)$, $f(kx)$, $f(x + k)$ for specific positive and negative values of *k,* and graph the transformation Given the graph of a function and more than two transformations, find the values of the constants and coefficients Given a partial graph, complete the graph for both even and odd functions	Identify the effect on a graph by replacing f(x) with two transformations: $f(x) + k$, $k\,f(x)$, $f(kx)$, $f(x + k)$ for specific positive and negative values of *k,* and graph the transformation Given the graph of a function and two transformations, find the values of the constants and coefficients Recognize even and odd functions from graphs and equations	Identify the effect on a graph by replacing f(x) with a single transformation: $f(x) + k$, $k\,f(x)$, $f(kx)$, $f(x + k)$ for specific positive and negative values of k Given the graph of a function and a single transformation, find the value of the constant or coefficient Recognize even and odd functions from graphs or equations	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Compose Functions (F.BF.1c)		Evaluate the composition of 2 functions in context of a situation	Evaluate the composition of 2 functions	Evaluate a function for a given value and use that result to evaluate a second function	

F.BF.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.***

F.BF.1c Compose functions. *For example, if T(y) is the temperature in the atmosphere as a function of height, and h(t) is the height of a weather balloon as a function of time, then T(h(t)) is the temperature at the location of the weather balloon as a function of time.*