MAFS.912.F-IF.2.4	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.
Also assesses MAFS.912.F-IF.3.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
Item Types	Equation Editor – May require expressing a value, expression, or equation. GRID – May require plotting points on a coordinate plane, graphing a function, or matching and/or selecting key features as verbal descriptions to points on the graph. Hot Text – May require selecting a key feature or region on a graph. Multiple Choice – May require selecting a choice from a set of possible choices. Open Response – May require explaining the meaning of key features or the comparison of two functions.
Clarifications	Students will determine and relate the key features of a function within a real-world context by examining the function's table. Students will determine and relate the key features of a function within a real-world context by examining the function's graph. Students will use a given verbal description of the relationship between two quantities to label key features of a graph of a function that model the relationship. Students will differentiate between different types of functions using a variety of descriptors (e.g., graphically, verbally, numerically, and algebraically). Students will compare and contrast properties of two functions using a variety of function representations (e.g., algebraic, graphic, numeric in tables, or verbal descriptions).
Assessment Limits	Functions represented algebraically are limited to linear, quadratic, or exponential. Functions may be represented using tables, graphs or verbally. Functions represented using these representations are not limited to linear, quadratic or exponential.

	Functions may have closed domains.
	Functions may be discontinuous.
	Items may not require the student to use or know interval notation.
	Key features include x-intercepts, y-intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior.
Stimulus Attributes	For F-IF.2.4, items should be set in a real-world context.
	For F-IF.3.9, items may be set in a real-world or mathematical context.
	Items may use verbal descriptions of functions.
	Items may use function notation.
Response Attributes	For F-IF.2.4, items may require the student to apply the basic modeling cycle.
	Items may require the student to write intervals using inequalities.
	Items may require the student to choose an appropriate level of accuracy.
	Items may require the student to choose and interpret the scale in a graph.
	Items may require the student to choose and interpret units.
Calculator	No

Sample Item	Item Type
	GRID – Drag and Drop

Kim is driving from Miami to Key West. The graph shows her distance from Key West.

During what interval is Kim driving the fastest? Drag numbers to the boxes to complete the inequality.

0
0.5
1
1.5
2
2.5
3
3.5
4

Delete

Distance from Key West

Distance (miles)

200
180
160
140
120
100
80
60
40
20

0   0.5   1   1.5   2   2.5   3   3.5   4

Time (hours)

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