

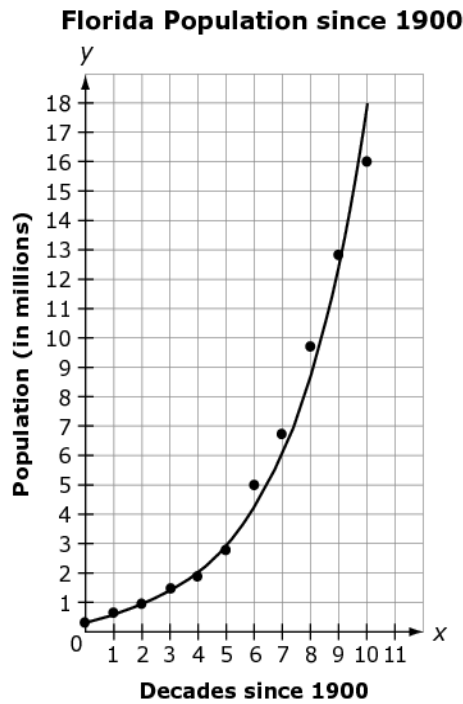
<p>MAFS.912.F-IF.1.2</p> <p>Also assesses MAFS.912.F-IF.1.1</p> <p>Also assesses MAFS.912.F-IF.2.5</p>	<p>Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.</p> <p>Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.</p> <p>Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. <i>For example, if the function $h(n)$ gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.</i></p>
<p>Item Types</p>	<p>Equation Editor – May require expressing a value, an inequality, an expression, or a function.</p> <p>GRID – May require mapping a relation, or choosing ordered pairs.</p> <p>Hot Text – May require dragging and dropping values or a set of values.</p> <p>Matching Item– May require selecting cells in a table that associate a function to its domain, values for inputs, or to choose elements of the domain of a relation.</p> <p>Multiple Choice – May require selecting a choice from a set of possible domains.</p> <p>Multiselect – May require selecting functions from a set of relations.</p> <p>Open Response – May require explaining the relationship of related values, or to interpret within a context.</p> <p>Table Item – May require completing a table of values.</p>
<p>Clarifications</p>	<p>Students will evaluate functions that model a real-world context for inputs in the domain.</p> <p>Students will interpret the domain of a function within the real-world context given.</p> <p>Students will interpret statements that use function notation within the real-world context given.</p> <p>Students will use the definition of a function to determine if a relationship is a function, given tables, graphs, mapping diagrams, or sets of ordered pairs.</p> <p>Students will determine the feasible domain of a function that models a real-world context.</p>

Assessment Limits	<p>Items that require the student to determine the domain using equations within a context are limited to exponential functions with one translation, linear functions, or quadratic functions.</p> <p>For F-IF.1.2, in items that require the student to find a value given a function, the following function types are allowed: quadratic, polynomials whose degrees are no higher than 6, square root, cube root, absolute value, exponential except for base e, and simple rational.</p> <p>Items may present relations in a variety of formats, including sets of ordered pairs, mapping diagrams, graphs, and input/output models.</p> <p>In items requiring the student to find the domain from graphs, relationships may be on a closed or open interval.</p> <p>In items requiring the student to find domain from graphs, relationships may be discontinuous.</p> <p>Items may not require the student to use or know interval notation.</p>
Stimulus Attributes	<p>For F-IF.1.1, items may be set in a real-world or mathematical context.</p> <p>For F-IF.1.2, items that require the student to evaluate may be written in a mathematical or real-world context. Items that require the student to interpret must be set in a real-world context.</p> <p>For F-IF.2.5, items must be set in a real-world context.</p> <p>Items must use function notation.</p>
Response Attributes	<p>For F-IF.2.5, items may require the student to apply the basic modeling cycle.</p> <p>Items may require the student to choose an appropriate level of accuracy.</p> <p>Items may require the student to choose and interpret the scale in a graph.</p> <p>Items may require the student to choose and interpret units.</p> <p>Items may require the student to write domains using inequalities.</p>
Calculator	Neutral

Sample Item

Item Type

Multiple Choice



The points on the graph show the population data, in millions, of the state of Florida for each decade from 1900 to 2000. The data are modeled by the function $P(x) = 506975(1.43)^x$, shown on the graph.

What is the domain of the graph of $P(x)$ that is shown?

- (A) $x \geq 0$
- (B) $1900 \leq x \leq 2000$
- (C) all whole numbers
- (D) $0 \leq x \leq 10$