MAFS.912.F-LE.1.3	Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.
Item Types	Editing Task Choice – May require choosing a function and/or a justification.
	Equation Editor – May require creating a value or an expression.
	GRID – May require selecting a part of a graph or table.
	Hot Text – May require rearranging equations.
	Multiple Choice – May require selecting a value or an expression from a list.
	Multiselect – May require selecting multiple values.
	Open Response – May require explaining what happens to a function for large values of *x* or explaining a comparison.
Clarifications	Students will compare a linear function and an exponential function given in real-world context by interpreting the functions' graphs.
	Students will compare a linear function and an exponential function given in a real-world context through tables.
	Students will compare a quadratic function and an exponential function given in real-world context by interpreting the functions' graphs.
	Students will compare a quadratic function and an exponential function given in a real-world context through tables.
Assessment Limits	Exponential functions represented in graphs or tables should be able to be written in the form $a(b)^x + k$.
	For exponential relationships, tables or graphs must contain at least one pair of consecutive values.
Stimulus Attributes	Items should give a graph or a table.
	Items should be given in a real-world context.
	Items may use function notation.
Response Attributes	Items may require the student to apply the basic modeling cycle.
	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
	Open Response

The function $f(x)$ models the value of goods that are imported into the United States, where x is the number of years since 1990. The function $g(x)$ models the value of goods that are exported from the United States.

x	f(x)	g(x)
40	$ 8,859,296.92	$ 6,295,111.00
45	$10,308,975.90	$ 8,476,064.00
50	$11,833,485.40	$11,412,611.00
51	$12,147,367.00	$12,112,204.00
52	$12,464,241.80	$12,854,683.00
55	$13,432,825.40	$15,366,531.00
60	$15,106,996.00	$20,690,294.00

If $f(x)$ and $g(x)$ continue to model the importing and exporting of goods, then sometime in 2041, which is 51 years after 1990, $f(x) = g(x)$.

Determine which function is exponential. Use the table of values to justify your choice.

Type your answer in the space provided. Be sure to include your function choice.