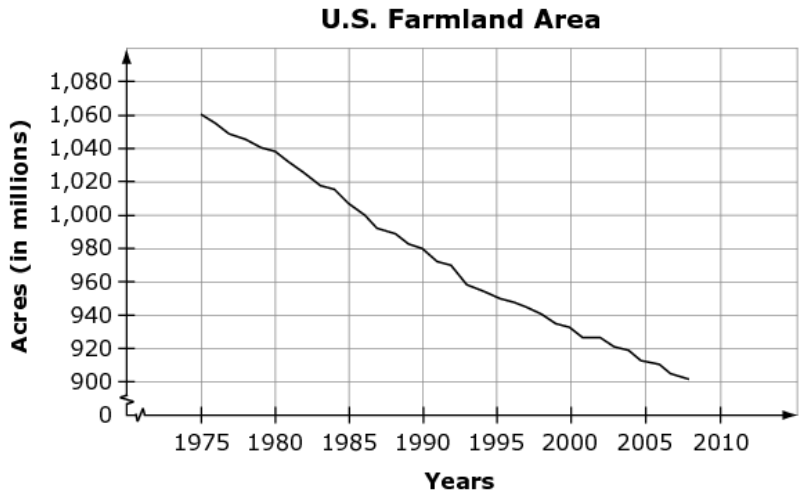
MAFS.912.F-IF.2.6 Also assesses MAFS.912.S-ID.3.7	Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
Item Types	Equation Editor – May require creating rate of change as a numeric value. Hot Text – May require dragging and dropping phrases or values. Matching Item – May require matching a value with an interpretation. Multiple Choice – May require selecting a statement about the rate of a data display, an interpretation, or context. Multiselect – May require selecting multiple statements about the rate of change and/or the constant term in a given context. Open Response – May require explaining the rate of change or *y*-intercept in context.
Clarifications	Students will calculate the average rate of change of a continuous function that is represented algebraically, in a table of values, on a graph, or as a set of data. Students will interpret the average rate of change of a continuous function that is represented algebraically, in a table of values, on a graph, or as a set of data with a real-world context. Students will interpret the y-intercept of a linear model that represents a set of data with a real-world context.
Assessment Limits	Items requiring the student to calculate the rate of change will give a specified interval that is both continuous and differentiable. Items should not require the student to find an equation of a line. Items assessing S-ID.3.7 should include data sets. Data sets must contain at least six data pairs. The linear function given in the item should be the regression equation. For items assessing S-ID.3.7, the rate of change and the *y*-intercept should have a value with at least a hundredths place value.

	Items assessing F-IF.2.6 should not be linear.
Stimulus Attributes	Items may require the student to apply the basic modeling cycle. Items should be set in a real-world context. Items may use function notation. Items may require the student to choose and interpret variables.
Response Attributes	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	Neutral

Sample Item	Item Type
	Multiple Choice

The graph shows the number of acres, in millions, of farmland in the United States from 1975 to 2008.



Which statement describes the average rate of change of the graph?

Ⓐ The number of acres of farmland in the United States decreases by 0.21 million each year.

Ⓑ The amount of farmland in the United States decreases by 4.8 million acres each year.

Ⓒ The time it takes the farmland in the United States to decrease by 160 acres is 33 years.

Ⓓ Every 5 years, the amount of farmland in the United States decreases by 20 acres.