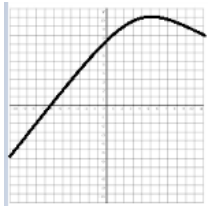
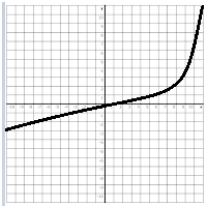
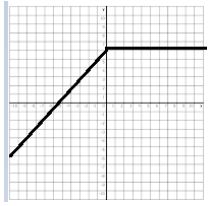
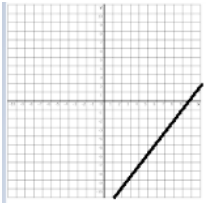
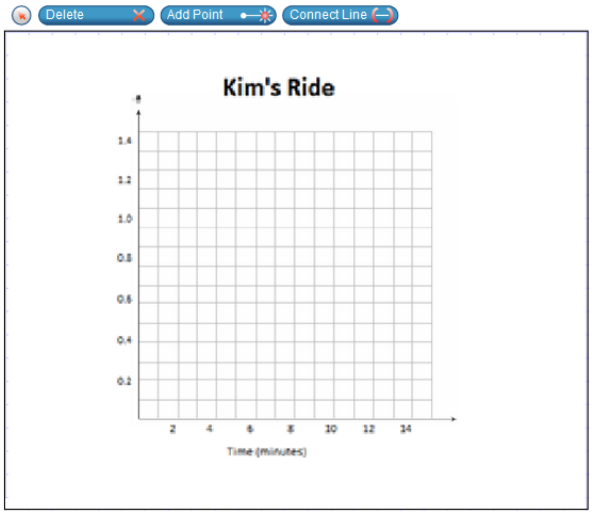
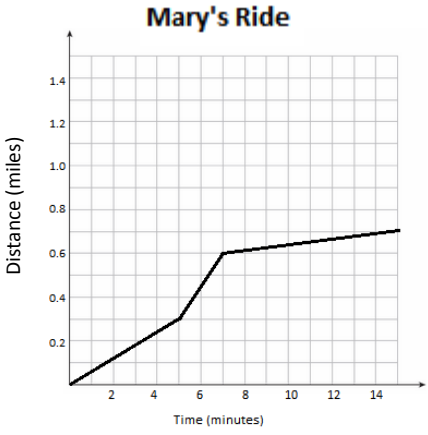
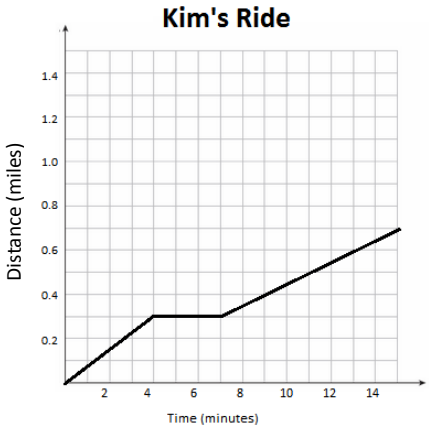
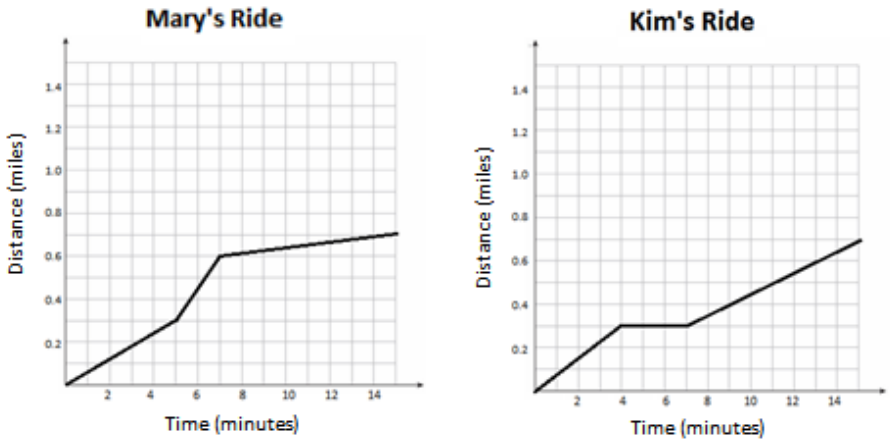
Content Standard	***MAFS.8.F*** *Functions* ***MAFS.8.F.2*** *Use functions to model relationships between quantities.* ***MAFS.8.F.2.5*** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Assessment Limits	Linear or nonlinear relationships may use any of the four quadrants. Graph descriptions move from left to right. Functional relationships must be continuous.
Calculator	Neutral
Item Types	Equation Editor GRID Matching Item Multiple Choice Multiselect Open Response Table Item
Context	Allowable

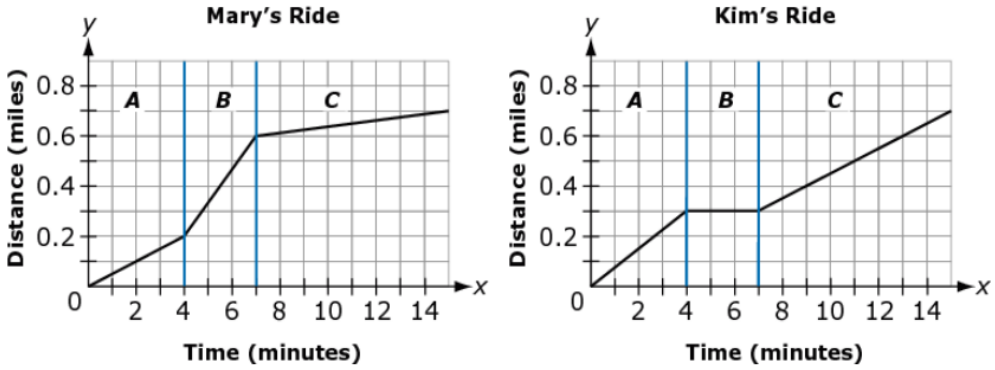
Sample Item	Item Type
Which graph represents a linear function increasing at a constant rate? A.  C.  B.  D. 	Multiple Choice

Sample Item	Item Type
Kim rides a stationary bike for fifteen minutes of exercise. Kim starts her ride slow, stops for 2 minutes, and then continues her ride faster than she started. Use the Connect Line tool to create a possible graph of Kim's ride. 	GRID
Mary and Kim go bike riding on some trails. Graphs of the functions representing one of their rides are shown, where x is the time, in minutes, and y is the distance, in miles. Select all statements that are true based on the graphs shown.   ☐ Kim stops for 3 minutes. ☐ Mary stops for 2 minutes. ☐ Mary slows down after minute 8. ☐ Kim and Mary both ride the same distance after 14 minutes. ☐ Mary and Kim both begin the bike ride at the same speed between minutes 0 and 4.	Multiselect

Sample Item	Item Type
Mary and Kim ride their bikes to school each day. Graphs of the functions representing one of their rides are shown, where x is the time, in minutes, and y is the distance, in miles.  Write a short story about Mary's bike ride describing the relationship between time and distance. Include information about changes in the behavior of the function and rate of speed using terms such as increasing, constant, and decreasing.	Open Response

Matching Item

Mary and Kim each take 15 minutes to ride their bikes to school. The graphs of the functions that model their rides are shown, where *x* is the time, in minutes, and *y* is the distance, in miles.



The graphs are divided into time intervals *A*, *B*, and *C*.

Use the graphs to match each statement with the appropriate person or people.

	Mary	Kim
Rode her bike fastest in interval *A*, as compared to the rest of her ride	☐	☐
Stopped for an interval of time	☐	☐
Rode slower in interval *C* than in interval *B*	☐	☐
Lives 0.7 miles from school	☐	☐