

Name \_\_\_\_\_ Date \_\_\_\_\_

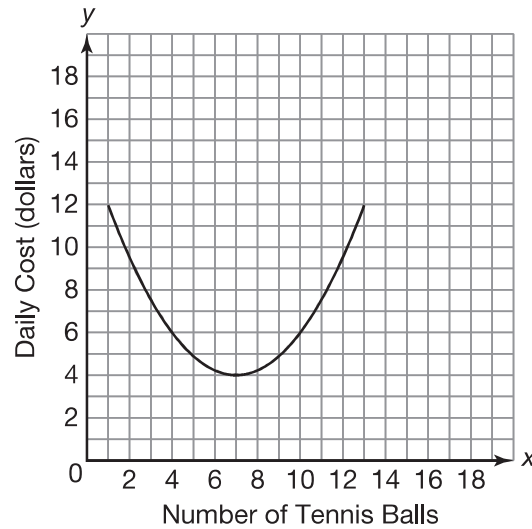
### Function Families for 200, Alex . . . Recognizing Functions by Characteristics

1. Complete the table to describe each scenario and its graph.
  - a. Identify the appropriate function family.
  - b. Based on the problem situation, identify whether the data values represented in the graph are discrete or continuous.
  - c. Identify the graphical behavior of the function that models the scenario based on the characteristics of its function family.

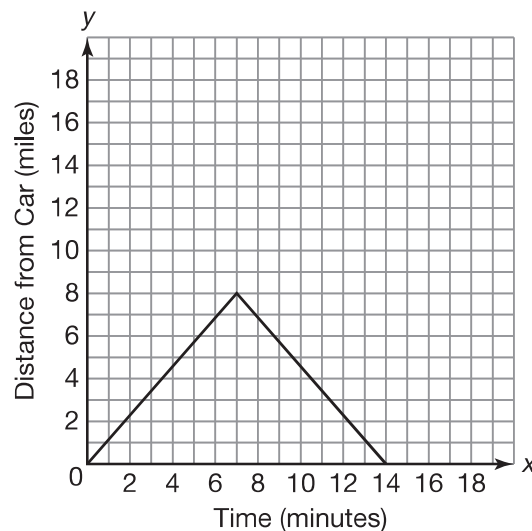
Scenario	Function Family	Domain: Discrete or Continuous	Graphical Behavior	
			Absolute Minimum or Absolute Maximum	Increasing, Decreasing, or Combination
	Exponential Function			
		Discrete		Decreasing
			Absolute Minimum	Combination of decreasing and increasing
	Linear Function			
Scenario 2				

**Scenario 1:**

A manufacturing company finds that the daily costs associated with making tennis balls is high if they don't make enough balls and then becomes high again if they make too many balls. The function graphed models the daily costs of making  $x$  tennis balls.

**Scenario 2:**

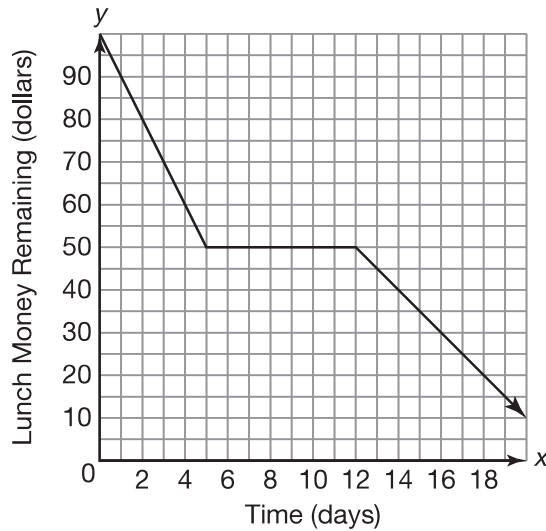
Greg is training for a mountain bike race. He leaves his car at the beginning of a trail and proceeds to bike 8 miles away and then comes back the same way to his car. If he bikes at a constant rate, the function graphed models the distance he is away from his car after  $x$  minutes.



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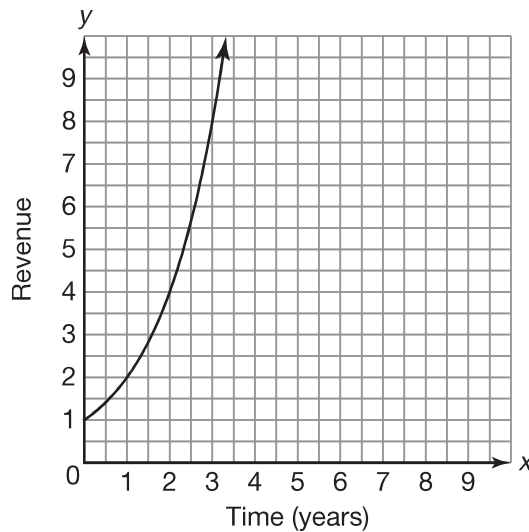
**Scenario 3:**

You have \$100 to spend on lunch over the next 20 days. The first five days, you spend \$10 on lunch each day. You pack your lunch for the next week and spend nothing. You then spend \$5 on lunch each of the remaining days until you have spent all your money. The function graphed models the amount of money left after  $x$  days.



**Scenario 4:**

A local television company determines that the revenue it gets from running ads doubles each year. The function graphed models the revenue from advertising after  $x$  years.



**Scenario 5:**

The Redwood Heights Women's Club is hosting a summer nighttime party in the park. They are handing out glow sticks to all the children who attend. They start with 200 glow sticks and each child receives 3 glow sticks. The function graphed models the number of glow sticks they have left after  $x$  children have entered.

