

# CHECK YOUR UNDERSTANDING

## The Function Concept

A group of scientists are studying the depth and water flow of their local river. As part of their study, they took a rafting trip down the river and collected data on **the depth of the river** at various points in time along their trip (Figure 1) and **their total distance traveled** at various points in time along their trip (Figure 2). You can see that data below.

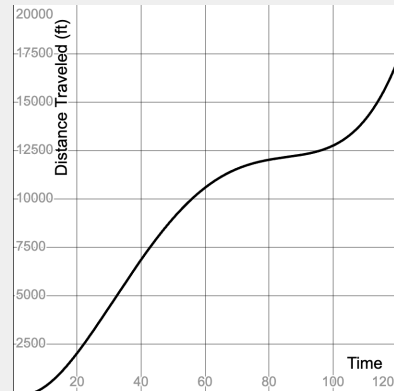
**Figure 1**

depth of river over time

Time (in minutes)	0	10	20	30	40	50	60	70	80	90	100	110	120
Depth (in feet)	4	6	8	10	6	5	4	5	7	12	9	6	5

**Figure 2**

total distance traveled over time



Use the data to decide if each statement is true or false. Provide a short reason for your decision.

- True  
 False

**1.** The depth of the water increases and decreases throughout the 120 minutes of floating down the river.

Reason:

- True  
 False

**2.** The distance traveled is always increasing.

Reason:

- True  
 False

**3.** The distance traveled is a function of time.

Reason:

- True  
 False

**4.** The distance traveled is greatest during the last ten minutes of the trip than during any other ten-minute interval of time.

Reason:

- True  
 False

5. The y-intercept of the depth of water over time function is  $(0, 0)$ .

Reason:

- True  
 False

6. The distance traveled increases and decreases over time.

Reason:

- True  
 False

7. The depth of the water is never 11 feet.

Reason:

- True  
 False

8. The depth of water reached a maximum at 30 minutes.

Reason:

9. (+) Use the data given in the table and the graph to graph the relationship between distance (independent variable) and depth (output variable) during the float trip and interpret the meaning.

