Lesson 3-5: Intervals of Increase and Decrease

1. Sample answer: The graph shows how two quantities are related in each interval without using numbers. The behavior of the function in these intervals can be described as increasing, decreasing, or constant.

2. Sample answer: If the slope is positive, the function is increasing; if the slope is negative, it is decreasing.

3. A constant function.

4. Sample answer: The function is increasing in interval 1, which means that as the time increases, the height also increases. The function is decreasing in interval 2, so as the time increases, the height decreases.

5. The function is increasing in intervals 3 and 4, decreasing in intervals 2 and 6, and constant in intervals 1 and 5.

6. increasing
   decreasing
   4

7. Sample answer: As the time increases, the temperature decreases.

8. increasing
   constant
   decreasing
   constant

9. The first interval

10. Sample answer: In each of the constant intervals, the speed is constant. In one interval, the constant speed is 0, so the car has stopped. In the other intervals, the constant speed is maintained.

11. a. 3

    b. Sample answer: They all have negative slopes and end at zero frequency.

    c. Sample answer: They do not all start at the same frequency.

12. a. Sample answer: No, there are 5 intervals shown where the function is constant.

    b. Sample answer: The student may have counted only the two intervals in which the constant speeds are the highest.

13. Sample answer: A roller coaster starts slowly, and then increases its speed quickly. The speed of the roller coaster decreases and increases in small increments throughout the ride until the roller coaster slows to a stop.

14. A,