# Lesson 7 Practice Problems

1. The temperature was recorded at several times during the day. Function T gives the temperature in degrees Fahrenheit, n hours since midnight.
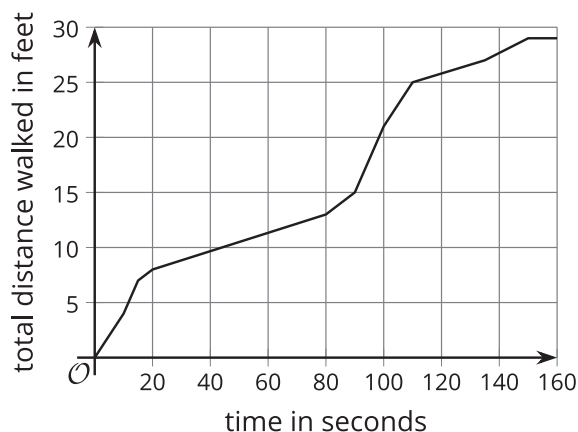
   Here is a graph for this function.

   For each time interval, decide if the average rate of change is positive, negative, or zero:

   a. From $n = 1$ to $n = 5$

   b. From $n = 5$ to $n = 7$

   c. From $n = 10$ to $n = 20$

   d. From $n = 15$ to $n = 18$

   e. From $n = 20$ to $n = 24$
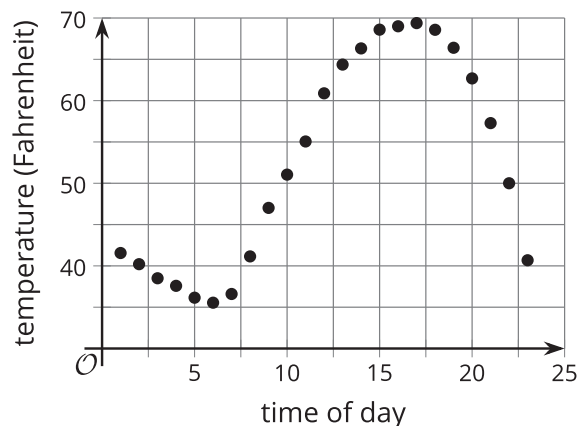
2. The graph shows the total distance, in feet, walked by a person as a function of time, in seconds.

   a. Was the person walking faster between 20 and 40 seconds or between 80 and 100 seconds?

   b. Was the person walking faster between 0 and 40 seconds or between 40 and 100 seconds?

3. The height, in feet, of a squirrel running up and down a tree is a function of time, in seconds.

   Here are statements describing the squirrel's movement during four intervals of time. Match each description with a statement about the average rate of change of the function for that interval.

   A. The squirrel runs up the tree very fast.

   B. The squirrel starts and ends at the same height.

   C. The squirrel runs down the tree.

   D. The squirrel runs up the tree slowly.

   1. The average rate of change is negative.

   2. The average rate of change is zero.

   3. The average rate of change is small and positive.

   4. The average rate of change is large and positive.

4. The percent of voters between the ages of 18 and 29 that participated in each United States presidential election between the years 1988 to 2016 are shown in the table.

year	1988	1992	1996	2000	2004	2008	2012	2016
percentage of voters ages 18-29	35.7	42.7	33.1	34.5	45.0	48.4	40.9	43.4

   The function P gives the percent of voters between 18 and 29 years old that participated in the election in year t.

   a. Determine the average rate of change for P between 1992 and 2000.

   b. Pick two different values of t so that the function has a negative average rate of change between the two values. Determine the average rate of change.

c. Pick two values of t so that the function has a positive average rate of change between the two values. Determine the average rate of change.

5. Jada walks to school. The function D gives her distance from school, in meters, as a function of time, in minutes, since she left home.

   What does $D(10) = 0$ represent in this situation?

   (From Unit 4, Lesson 2.)

6. Jada walks to school. The function D gives her distance from school, in meters, t minutes since she left home.

   Which equation tells us "Jada is 600 meters from school after 5 minutes"?

   A. $D(5) = 600$

   B. $D(600) = 5$

   C. $t(5) = 600$

   D. $t(600) = 5$

   (From Unit 4, Lesson 2.)

7. A news website shows a scatter plot with a positive relationship between the number of vending machines in a school and the percentage of students who are absent from school on average. The headline reads, "Vending machines are causing our youth to miss school!"

   a. What is wrong with this claim?

   b. What is a better headline for this information?

   (From Unit 3, Lesson 9.)