Unit 5, Lesson 5

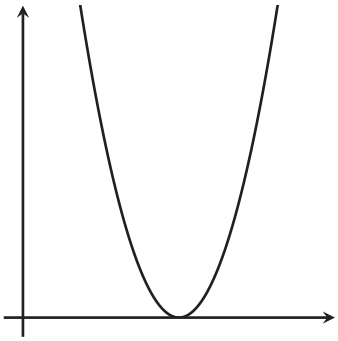
More Graphs of Functions

Let's interpret graphs of functions.

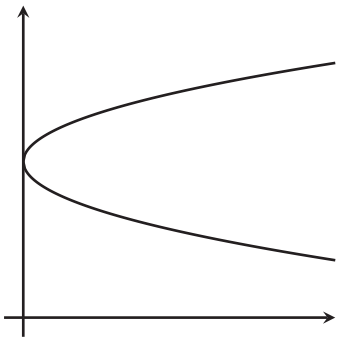
5.1 Which Three Go Together: Graphs

Which three go together? Why do they go together?

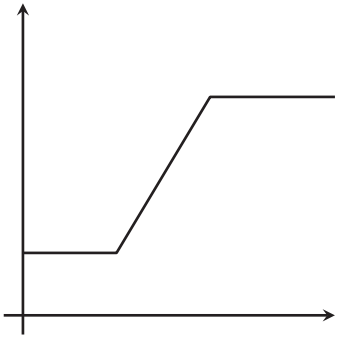
A



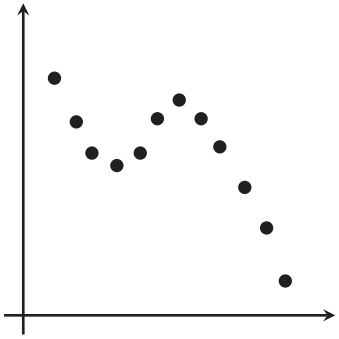
B



C



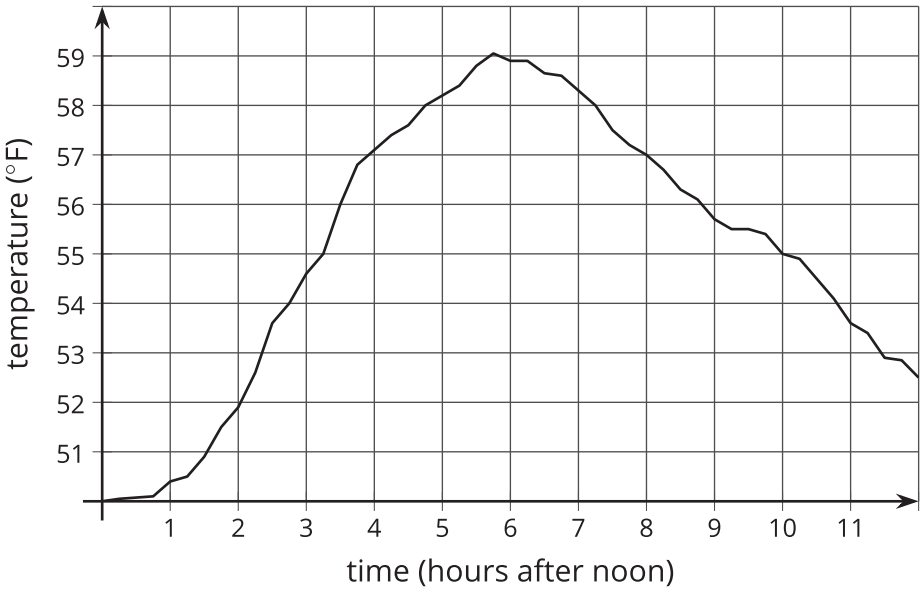
D



CC BY NC Illustrative Mathematics, based on IM 6–8 Math, CC BY Open Up Resources.

5.2 Time and Temperature

The graph shows the temperature between noon and midnight in one day in City A.



1. Is it warmer at 3:00 p.m. or 9:00 p.m.?

2. Approximately when is the temperature highest?

3. Find another time that the temperature is the same as it is at 4:00 p.m.

4. Does the temperature change more between 1:00 p.m. and 3:00 p.m. or between 3:00 p.m. and 5:00 p.m.?

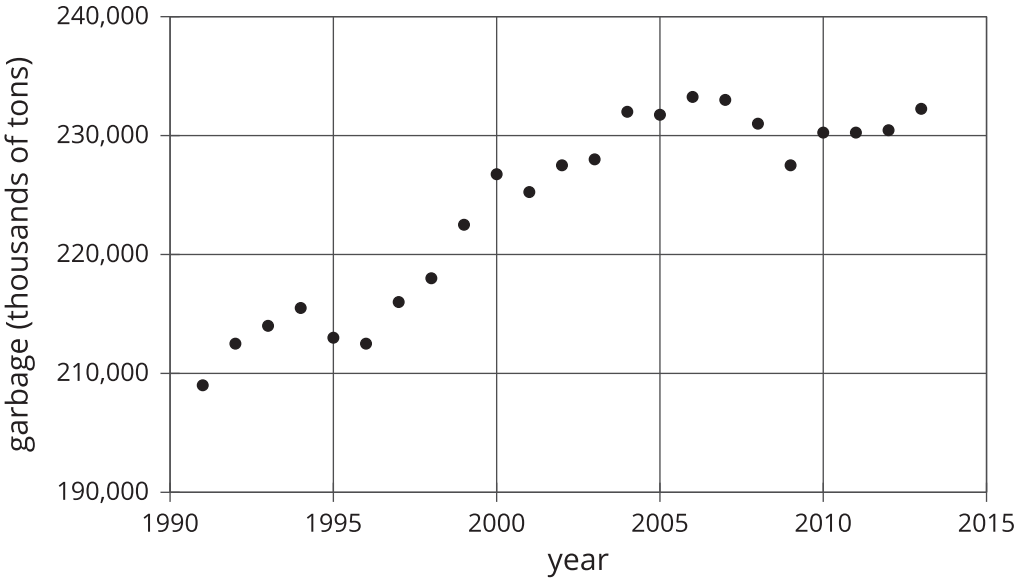
5. Does this graph show that temperature is a function of time, or time is a function of temperature?

6. When the input for the function is 8, what is the output? What does that tell you about the time and temperature?

CC BY NC Illustrative Mathematics, based on IM 6–8 Math, CC BY Open Up Resources.

5.3 Garbage

1. The graph shows the amount of garbage produced in the United States each year between 1991 and 2013.



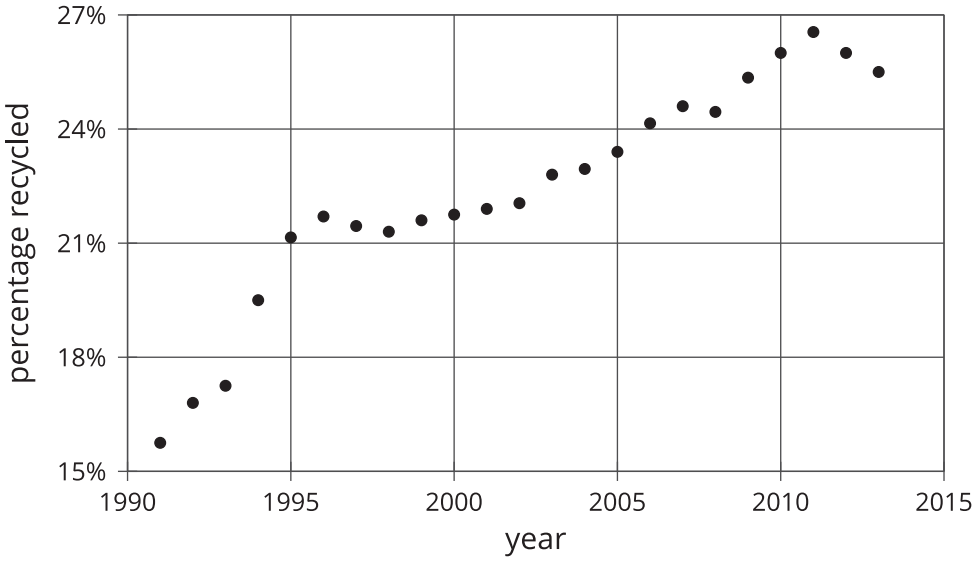
a. Did the amount of garbage increase or decrease between 1999 and 2000?

b. Did the amount of garbage increase or decrease between 2005 and 2009?

c. Between 1991 and 1995, the garbage increased for three years, and then it decreased in the fourth year. Describe how the amount of garbage changed in the years between 1995 and 2000.

CC BY NC Illustrative Mathematics, based on IM 6–8 Math, CC BY Open Up Resources.

2. The graph shows the percentage of garbage that was recycled between 1991 and 2013.



   a. When is the graph increasing?

   b. When is the graph decreasing?

   c. Tell the story of the change in the percentage of garbage recycled in the United States over the time period shown in the graph.

Are you ready for more?

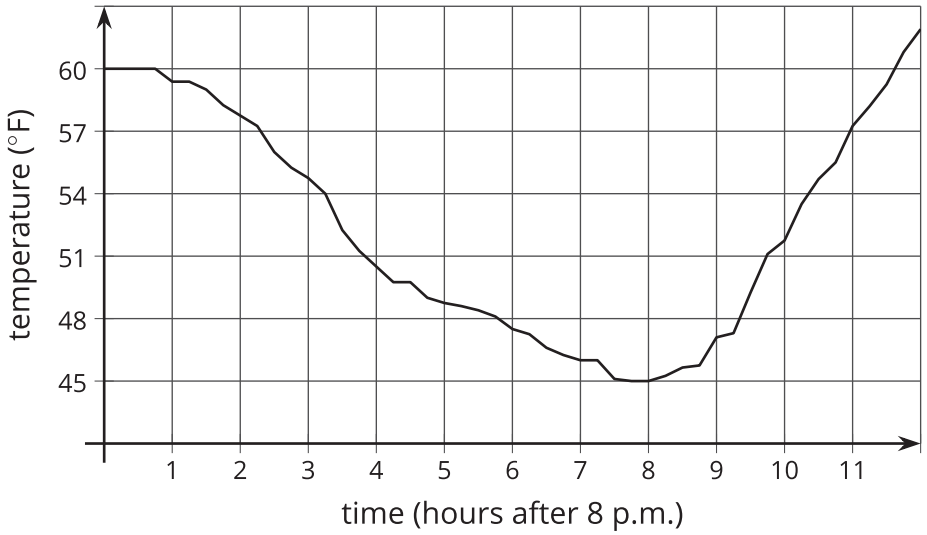
Refer to the graph in the first part of the activity.

1. Find a year where the amount of garbage produced increases from the previous year, but not by as much as it increases the following year.
2. Find a year where the amount of garbage produced increases from the previous year, and then increases by a smaller amount the following year.
3. Find a year where the amount of garbage produced decreases from the previous year, but not by as much as it decreases the following year.
4. Find a year where the amount of garbage produced decreases from the previous year, and then decreases by a smaller amount the following year.

CC BY NC Illustrative Mathematics, based on IM 6–8 Math, CC BY Open Up Resources.

Lesson 5 Summary

Here is a graph showing the temperature in a town as a function of hours after 8:00 p.m.



The graph of a function tells us what is happening in the context the function represents. In this example, the temperature starts out at 60° F at 8:00 p.m. It decreases during the night, reaching its lowest point about 8 hours after 8:00 p.m., or 4:00 a.m. Then it starts to increase again.

CC BY NC Illustrative Mathematics, based on IM 6–8 Math, CC BY Open Up Resources.