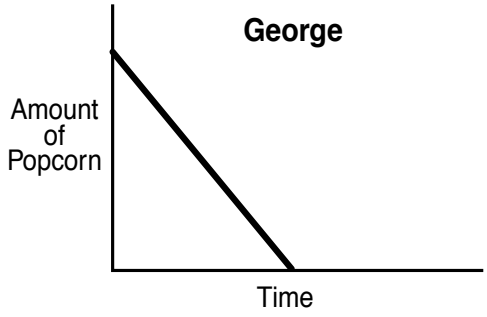
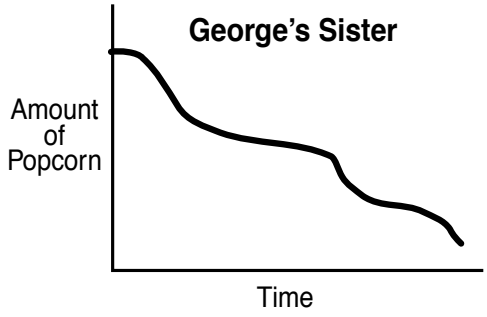
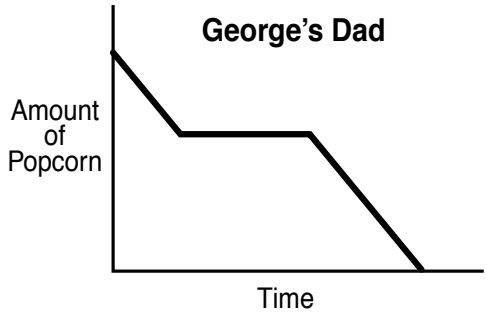
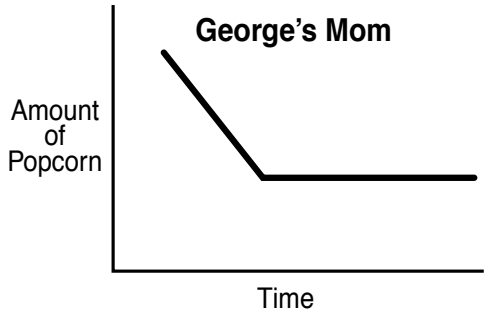
George and his family were watching a movie and eating popcorn. Each family member had a bowl with the same amount of popcorn. The graphs below all show the amount of popcorn remaining in the person's bowl over a period of time. Under each graph, write a few sentences describing what may have happened.









From the *Mathematics Teacher,* April 1999

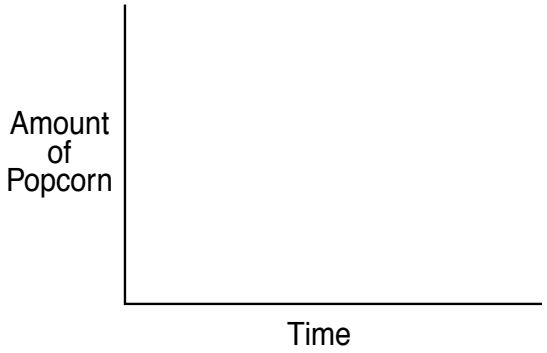
George and his friend Alyssa went to the movies, where they each bought a medium tub of popcorn. George was quite hungry and quickly ate half his popcorn, paused for a moment, and then continued eating at the same rate as before. Alyssa waited for a few minutes before she began and then ate at a steady rate. When she noticed that George had almost finished his popcorn, she gave him some of her own. They then both continued eating and finished at the same time.

1. On the axes below, show how the amount of popcorn remaining in George's tub varied over time.

2. On the same axes but using a different color, show how the amount of popcorn remaining in Alyssa's tub varied over time.

3. Examine each graph. How are the two graphs similar, and how they are different?

_____
_____
_____



4. How does your graph show that Alyssa waited for a few minutes before she began eating?

_____

5. How did you show on your graph that she gave him some of her own popcorn?

_____
_____

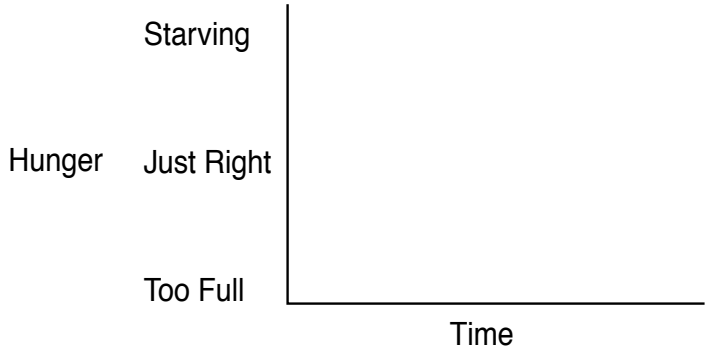
6. How does your graph show that they both continued eating and finished at the same time?

_____
_____

7. How does your hunger change from morning until night? On the given axes, show how your hunger changes from the time you wake up in the morning until you go to bed at night.

8. Write a paragraph explaining what your graph reveals about your eating habits.

_____
_____
_____
_____
_____
_____



(Continued on page 332)

(Continued from page 326)

WHAT IS HAPPENING? SHEET 3

Match each of the following seven scenarios with the most appropriate graph given. As you look at each graph from left to right, remember that time is advancing.

___ 1. We rode the roller coaster steadily to the top, then went faster and faster as we went down the other side. The speed of the roller coaster is the dependent variable of the graph, that is, the variable on the vertical axis.

___ 2. The kettle heats before the corn begins to pop. The corn starts to pop and continues popping until almost all the corn has popped. The amount of *un*popped corn in the kettle is the dependent variable.

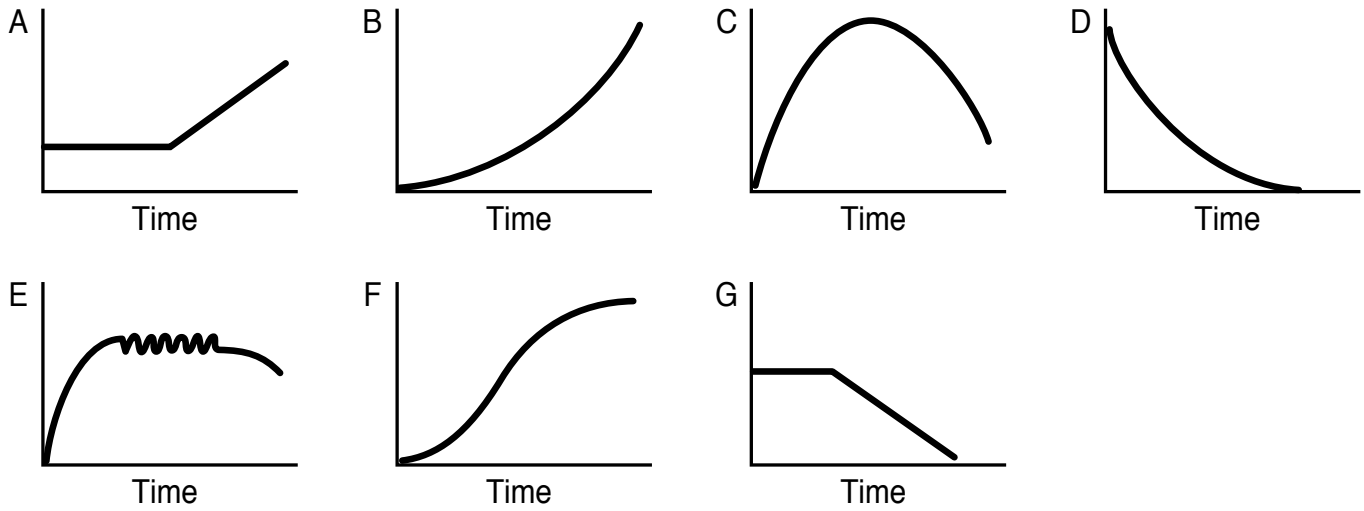
___ 3. A balloon was blown up in class and then let go. It flew around the room. The amount of air in the balloon is the dependent variable.

___ 4. At the beginning of spring, the grass grew slowly and I seldom had to mow the lawn. By midsummer it was really growing, so I mowed twice a week. In fall, I only mow once in a while. The number of lawn mowings to date is the dependent variable.

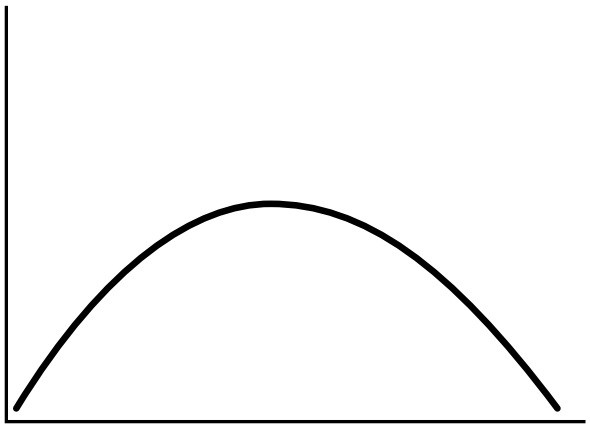
___ 5. I turned the oven on. When it was hot, I put in the cake. The cake baked for about thirty minutes. I turned the oven off and removed the cake. The oven temperature is the dependent variable.

___ 6. We bought a pair of rabbits last year. They have had several litters, and we have so many rabbits that the pens are full. If more are born, we will have to give some away or find room for the new ones. The number of rabbits is the dependent variable.

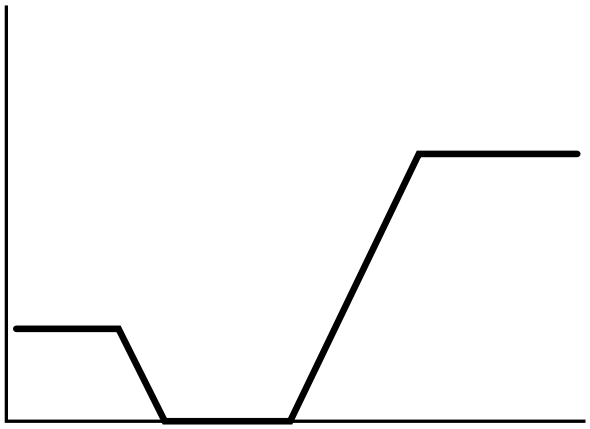
___ 7. I put water in the ice-cube tray and placed it in the freezer. The temperature of the water in the ice-cube tray is the dependent variable.



1. Think of a real-life situation that could be represented by the graph on the right. Write a story about the situation, and be prepared to read your story to the class. Be sure to label the axes of the graph.



2. Think of a real-life situation that could be represented by the graph on the right. Write a story about it, and be prepared to read the story to your classmates. Be sure to label the axes of the graph.



Before graphing each relationship, label both axes appropriately, and be ready to explain to your classmates the reasoning behind each of your graphs.

1. You turn on the hot-water faucet. The temperature of the running water depends on the number of seconds since you turned on the faucet.

2. As you play with a yo-yo, the yo-yo's distance from the floor depends on the number of seconds that have passed since you started.

1.

2.

3. You go from sunlight into a dark room. The diameter of your pupils depends on the length of time that you have been in the room.

4. You pour some cold water from the refrigerator into a glass and leave it on the counter. As the glass sits on the counter, the water's temperature depends on the number of minutes that have passed since you poured it.

3.

4.