Name _____ Date _____ Class _____

Additional Practice *(continued)*

Investigation 1

Variables and Patterns

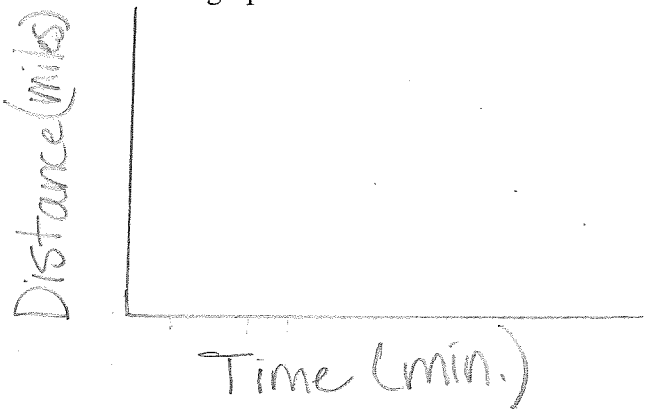
2. Emma and her mother walk along a straight road from their house to their favorite ice cream shop. Emma keeps track of their pace over their seventy-five-minute walk. She made the following notes:

- We walked $\frac{3}{4}$ mile in the first 20 minutes.
- We stopped for 10 minutes to talk to a friend.
- For the next 20 minutes we walked more slowly and passed the $\frac{1}{2}$ mile of lovely gardens.
- We walked at our normal pace for the next $\frac{3}{4}$ mile. This took 20 minutes.
- We walked very fast for the last $\frac{1}{2}$ mile to get to the shop before it closed. This took only 5 minutes.

a. Make a table of (*time, distance*) data that reasonably fits the information in Emma's notes.

Time (min)	0	20	30	50	70	75
Distance (mi)	0	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$

b. Sketch a coordinate graph that shows the same information as the table.



c. Does it make sense to connect the points on this graph? Explain your reasoning.

d. If Emma decided to only show one method of displaying the data (*time, distance*) to her mother, which should she choose if she wanted to show her mother the changes in their walking speed? Explain your choice.

Variables and Patterns Practice Answers

Investigation 1 Additional Practice

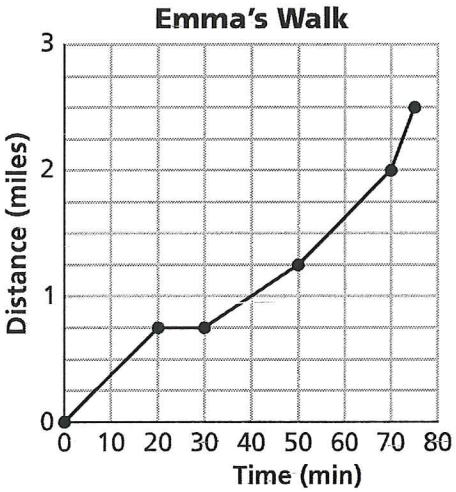
1. a. Day is the independent variable and "number of cans" is the dependent variable; the number of cans depends on the day.
   b. Day 1 collected the most cans of food, about 75.
   c. Possible answer: 75 + 60 + 60 + 35 + 70 = 300 cans of food.
   d. No. There are no points that would occur in between days.

2. a.

Emma's Walk

Time (min)	20	30	50	70	75
Distance (mi)	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{4}$	2	$2\frac{1}{2}$

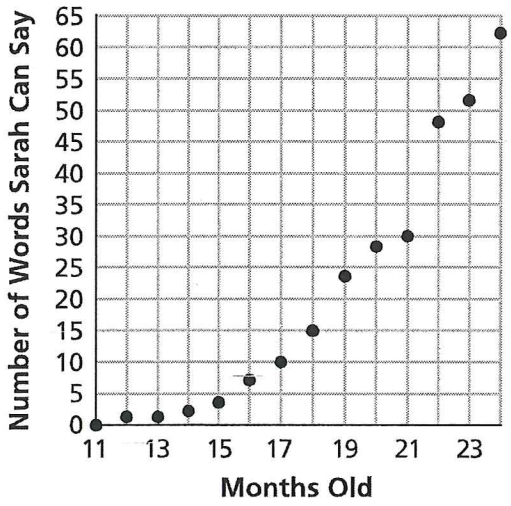
b.



c. Answers will vary: It makes sense to connect the dots because Emma and her mother are moving through time continuously, either walking or standing still.

d. Students' preferences and reasons will vary. The graph gives a quick overview of the walk at a glance, but it is harder to know what the individual data points are and the actual amount of change between them. The table gives the total miles Emma and her mother walked after a certain time in a very convenient and more exact form, but it is difficult to get a quick overview of the whole walk.

3. a.



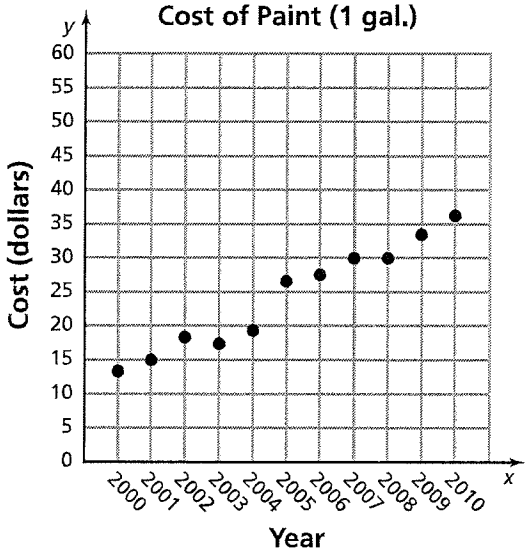
Name _____ Date _____ Class _____

Additional Practice: Digital Assessments

Investigation 2

Variables and Patterns

7. The graph below shows the relationship between two variables.
Use the words and numbers in the bank to complete each statement.



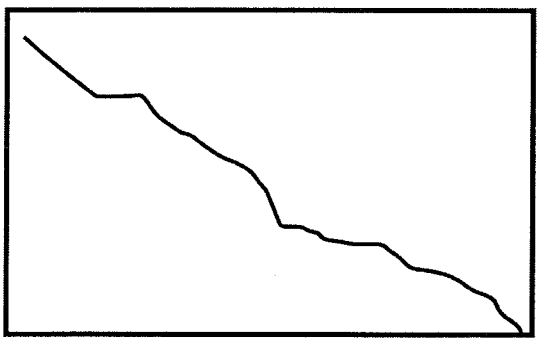
cost	gallon	paint	year
2000	2001	2002	2003
2004	2005	2006	2007
2008	2009	2010	

a. The two variables shown in the graph are _____ and _____.

b. Between _____ and _____ there was no change in the cost of a gallon of paint.

c. Between _____ and _____ the cost of a gallon of paint had the greatest increase.

8. Which of the following situations might be correctly modeled by the graph below?



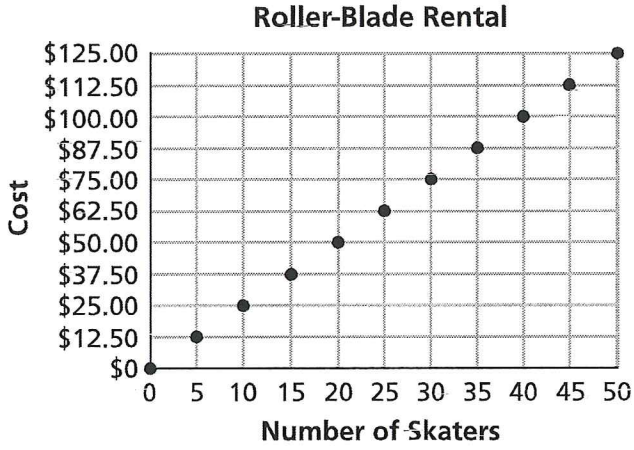
Select all that apply.

- ☐ height of a feather as it falls from a flying bird
- ☐ total distance traveled over time
- ☐ total distance remaining to travel over time
- ☐ path of a basketball through a hoop
- ☐ snow accumulation during a blizzard

Variables and Patterns Practice Answers

4. a. **Roller Blade Rental**

Number of Skaters	Rental Charge
0	$0
5	$12.50
10	$25.00
15	$37.50
20	$50.00
25	$62.50
30	$75.00
35	$87.50
40	$100.00
45	$112.50
50	$125.00



b. Possible answer: Both tables show a constant increase in the y-values as the x-values increase by a fixed amount. The points on both graphs follow a straight-line pattern.

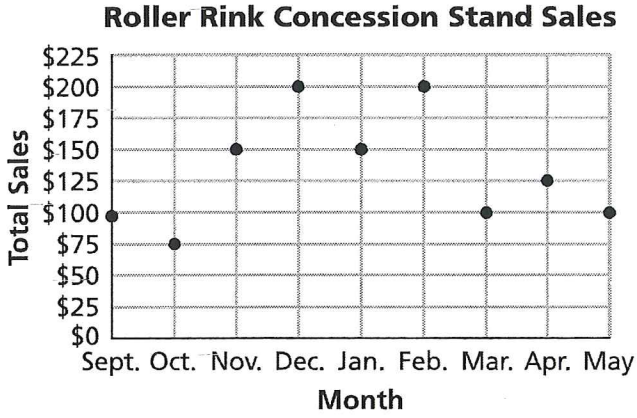
5. a. **Concession Stand Sales**

Month	Sales
Sept.	$100
Oct.	$75
Nov.	$150
Dec.	$200
Jan.	$150
Feb.	$200
Mar.	$100
Apr.	$125
May	$100

b. **Concession Stand Profit**

Month	Profit
Sept.	$50
Oct.	$37.50
Nov.	$75
Dec.	$100
Jan.	$75
Feb.	$100
Mar.	$50
Apr.	$62.50
May	$50

c. The graph of the profit is similar to the sales graph except that each y-coordinate in the profit graph is exactly half the value of the y-coordinate in the total sales graph.



6. a. The graph shows the cyclist's speed constantly increasing.
   b. The graph shows the cyclist's speed constantly decreasing.
   c. The graph shows the cyclist's speed increasing and then leveling off.
7. a. cost and year or year and cost
   b. 2007 and 2008
   c. 2004 and 2005
8. height of a feather as it falls from a flying bird, total distance remaining to travel over time.