

10-1

Scatter Plots

© CONTENT STANDARDS

8.SP.1, 8.SP.2

What You'll Learn

To interpret and make scatter plots of bivariate data

New Vocabulary scatter plot, bivariate data

Why Learn This?

You can use a scatter plot to see the relationship between the number of tickets that were sold to a soccer game and the amount of money collected in ticket sales.



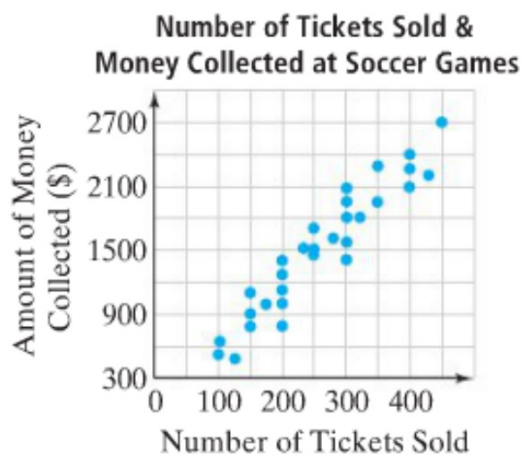
Bivariate data show the relationship between two variables. A **scatter plot** is a graph that displays bivariate data as ordered pairs.

EXAMPLE

Reading Scatter Plots

- 1 On the graph at the right, tell what the ordered pair $(150, 1,100)$ represents.

Each point on the scatter plot represents one ordered pair (number of tickets sold, amount of money collected (\$)). So for $(150, 1,100)$, 150 represents the number of tickets sold to a soccer game, and 1,100 represents the amount of money, in dollars, collected in ticket sales at that game.



Example

- 1 **Reading Scatter Plots** On the graph at the right, tell what the ordered pair $(4, 1,500)$ represents.

Each point on the scatter plot represents one ordered pair:

(,)

So, for $(4, 1,500)$,

4 represents

1,500 represents

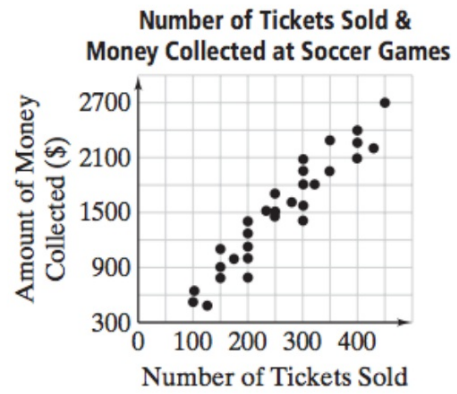
Raise Received by Workers Based on Number of Years They Have Been Employed



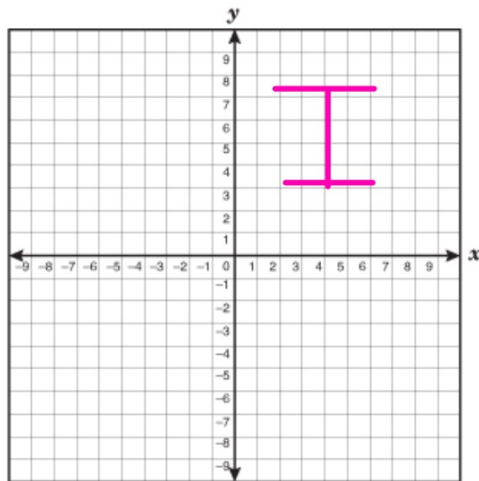
Quick Check

1. a. In the scatter plot to the right, what does (350, 2,275) represent?

- b. How many tickets were sold when the amount of money collected was \$2,700?



Given two different sets of numeric data, you can construct a scatter plot. Most scatter plots are in the first quadrant of the coordinate plane because real-world data are usually positive numbers.



EXAMPLE Making Scatter Plots

2 **Cars** Make a scatter plot for the data in the table below.



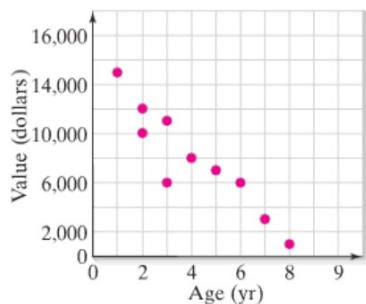
What's a Car Worth?
Average Value of a Midsize Sedan (dollars)

Age (yr)	Value	Age (yr)	Value
3	11,000	1	15,000
2	12,000	4	8,000
7	3,000	5	7,000
8	1,000	3	6,000
2	10,000	6	6,000

Step 1 Use the horizontal axis to represent the age of the car. The greatest age is 8 years. So a reasonable scale on the *Age* axis is 0 to 9.

Step 2 Use the vertical axis to represent the value of the car. The greatest value is \$15,000. So a reasonable scale on the *Value* axis is 0 to 16,000.

Step 3 Plot the data in the table. For example, for the age of 3 years and the value of \$11,000, plot (3, 11,000).



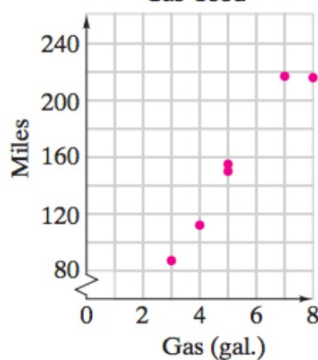
Examples

2 **Making Scatter Plots** Make a scatter plot for the data.

Miles Traveled and Gas used

Gas (gal)	Miles
5	150
4	112
7	217
3	87
8	216
5	155

Miles Traveled and Gas Used



Step 1 Use the horizontal scale to show the **gallons of gas used**.

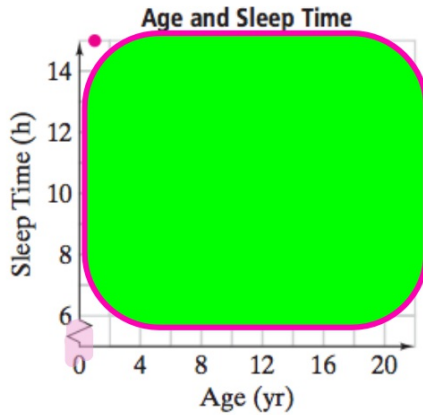
Use the vertical scale to represent the **number of miles**.

Step 2 Plot each data pair (5, 150) represents a data pair.

Quick Check

2. Make a scatter plot for the data below.

Age(yr)	1	15	6	19	12	3	5	13	20	6
Sleep Time (h)	15	8.5	9.5	7	9.25	12	11	9	7	9.75



Check Your Understanding

1. [Redacted]
2. [Redacted]
3. [Redacted]
4. [Redacted]
5. [Redacted]

1. **Vocabulary** Which type of data compares two variables? **See left.**

Use the scatter plot to complete Exercises 2–5. **2–5. See left.**

2. What information is shown on the horizontal axis of the scatter plot?
3. What information is shown on the vertical axis of the scatter plot?
4. What does the red data point represent?
5. How many smart phones were sold for an average price of \$100?



You have an assignment worksheet and time to begin working on it now.

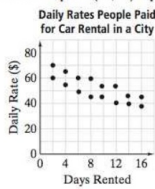
Name _____ Class _____ Date _____

Practice 10-1

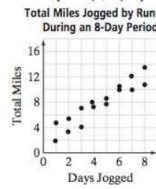
Scatter Plots

Use the given scatter plots to complete Exercises 1 and 2.

1. What does the point (12, 40) represent?



2. What does the point (7, 10) represent?



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Make a scatter plot for each set of data.

3.

Weeks	7	4	6	8	2	3
Hours	28	20	25	36	10	12



4.

Work Hours	20	15	10	35	30	25
Total Sales	60	30	15	90	80	75



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