

Scatter Plots

Name: _____

Prerequisite: Graph Points on the Coordinate Plane

Study the example showing how to graph points on the coordinate plane. Then solve problems 1–8.

Example

Graph and label each of the points on the coordinate plane.

$A(5, 3)$ $B(-4, -2)$ $C(-1, 3)$ $D(0, -1)$ $E(4, -4)$

Start from the origin for each point.

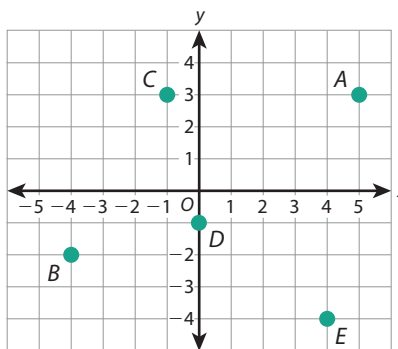
For point A : Move 5 units right and 3 units up.

For point B : Move 4 units left and 2 units down.

For point C : Move 1 unit left and 3 units up.

For point D : Move 1 unit down.

For point E : Move 4 units right and 4 units down.



- 1 Point B in the example is in which quadrant?

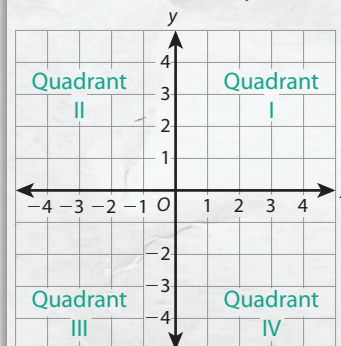
- 2 Suppose both coordinates of a point are positive. In which quadrant is the point located? _____
- 3 Without graphing, in which quadrant is $F(-2, 4)$ located? Explain.

- 4 When a point is on the y -axis, like point D in the example, what do you know about the x -coordinate? What is the y -coordinate when a point is on the x -axis?

Vocabulary

origin the point on the coordinate plane where the x -axis and y -axis intersect.

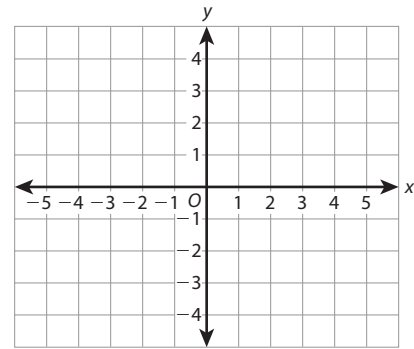
quadrants the four regions of the coordinate plane that are created by the x -axis and the y -axis.



Solve.

The table shows the locations of the exhibits at a science museum. Use the coordinate plane and the table for problems 5–6.

Exhibit	Coordinates
Flight	(4, 2)
Electricity	(-3, -3)
Space	(-2, 4)
Technology	(5, -2)



5 Graph each exhibit at the science museum as a point on the coordinate plane and label it with the first letter of the exhibit name.

6 Describe how you graphed each exhibit.

Flight: _____

Electricity: _____

Space: _____

Technology: _____

7 Give the coordinates of the points that are on the coordinate plane at the right.

Point U: _____

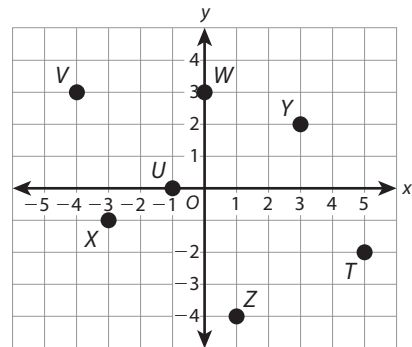
Point V: _____

Point W: _____

Point X: _____

Point Y: _____

Point Z: _____



8 Rachelle graphs a point at (4, 2). She says that she can move her point four or more units to the left and two or more units down to arrive at a point in the third quadrant. Is Rachelle correct? Explain why or why not.

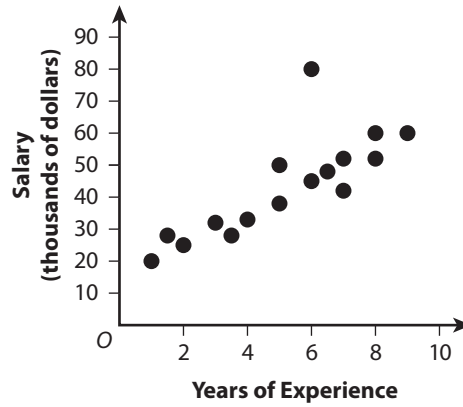
Identify Positive and Negative Associations

Study the example showing how to analyze a scatter plot. Then solve problems 1–7.

Example

The scatter plot represents data comparing the incomes of a company's employees and the number of years of experience they have. What trends do you notice?

There appears to be a positive association between income and years of experience because there is an upward trend in the data. The income increases as the number of years of experience increases.



1 Does the data seem to have a linear or non-linear association? Explain how you know.

2 Are there any points that lie outside the general trend of the data and might be considered an outlier?

3 Who would you expect to have a higher income: someone with 4 years of experience or 8 years? Why?

4 Would the gallons of gas a car uses and the distance it travels have a positive or negative association? Explain.

Vocabulary

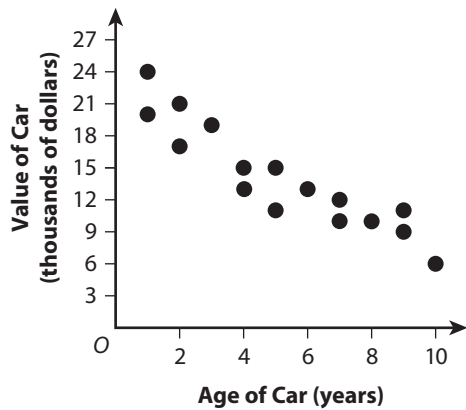
scatter plot a graph of ordered pairs in the coordinate plane that represents a set of data points.

outlier a data value that is much greater or much less than most of the other values in the data set.



Solve.

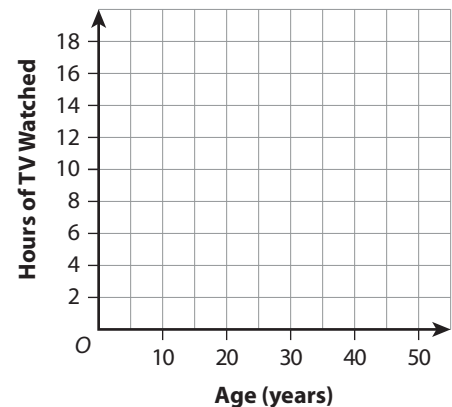
The scatter plot compares the ages of cars to their values. Use the scatter plot for problems 5–6.



5 Describe any trend that you see in the scatter plot.

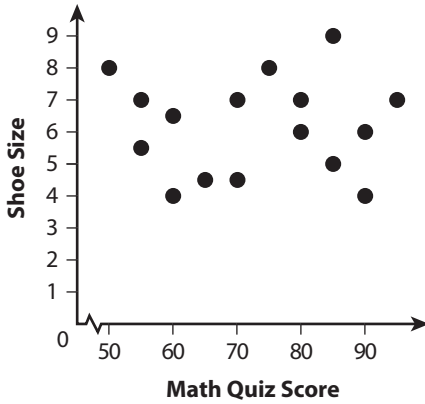
6 What type of association does there appear to be between the value of the car and the age of the car? Explain.

7 Graph 16 points on the scatter plot at the right that show no association between a person's age and how much television they watch per week. Explain how you know that there is no association.



Scatter Plots

1 What type of association does the scatter plot show?



Is there a trend in the shoe size as the math quiz score increases?

- A positive
- B negative
- C none
- D non-linear

2 Use the scatter plot in problem 1 to decide whether each statement is *True* or *False*.

- a. There are no outliers. True False
- b. There are 10 data points. True False
- c. The person with the highest score has a size 7 shoe. True False
- d. The scatter plot shows that people with higher test scores have smaller feet. True False

What does each point in the scatter plot represent?

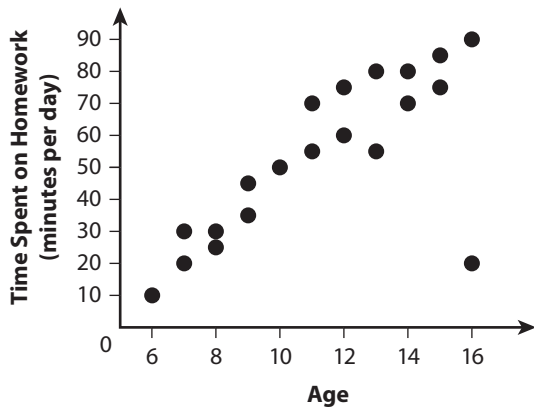
3 Describe a situation in which there would be a positive association between two variables.

What does the graph of a positive association look like?



Solve.

Use the scatter plot for problems 4–5.



4 Which point appears to be an outlier?

- A (6, 10) C (16, 20)
B (13, 55) D (16, 90)

Gary chose **A** as the correct answer. Why is choice **A** incorrect?

Remember that an outlier is a data value that is much greater or much less than most of the other values in the data set.



5 What type of association does there appear to be between the variables? Explain.

Is there a trend in the data?



6 Describe a situation in which there would be a negative association between two variables.

What does the graph of a negative association look like?

