Scatter Plots Worksheet

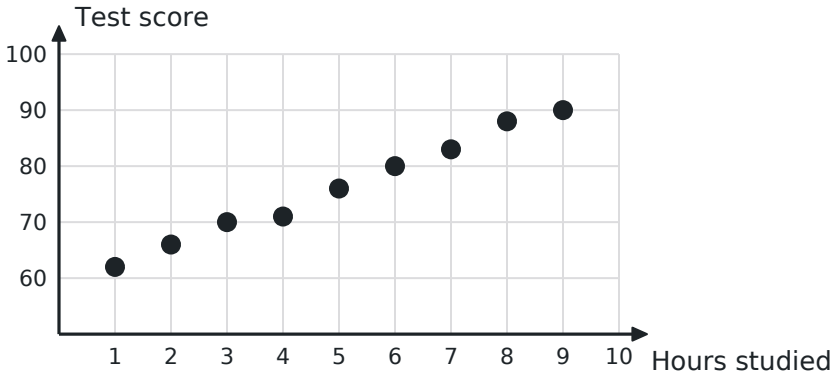
Grade 8 · Common Core 8.SP.A.1

> Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.

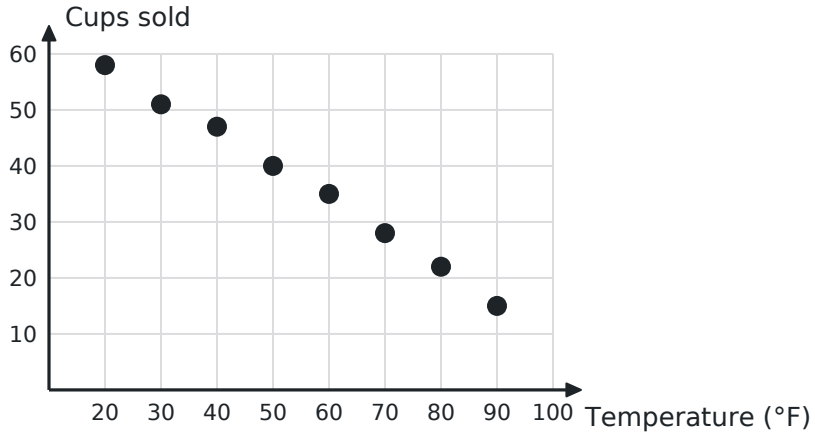
Practice

Builds the skill step by step.

1. The scatter plot shows hours studied and test scores for 9 students. Is the association positive, negative or none?



2. The scatter plot shows the outdoor temperature (°F) and the number of cups of hot cocoa a café sells. Is the association positive, negative or none?



3. Which pair of quantities would most likely show a positive association?

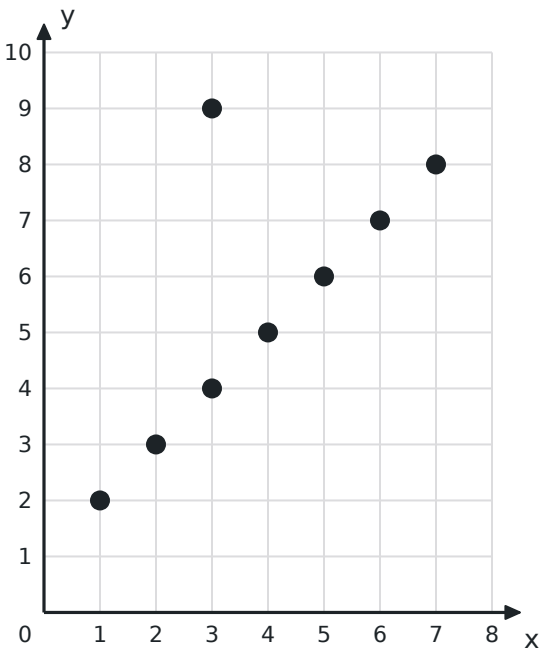
   A. A person's height and shoe size

   B. A car's age and its value

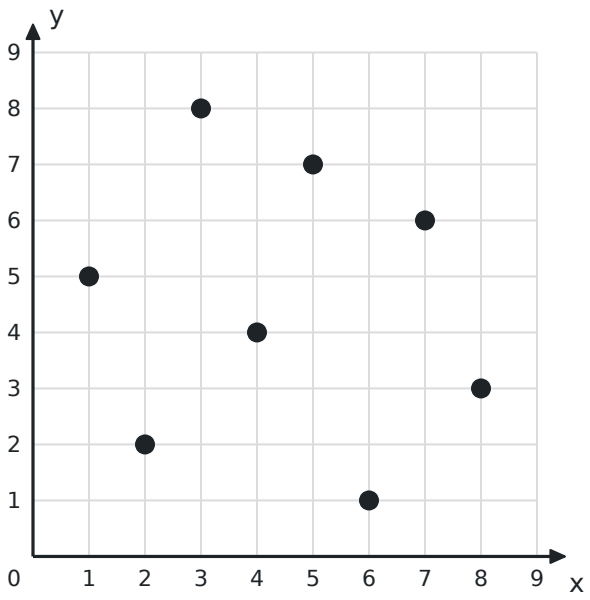
   C. The outdoor temperature and a home's heating bill

   D. A student's shoe size and test score

4. Which point on the scatter plot is an outlier? Give its coordinates.



5. Which describes the association shown in the scatter plot?



A. Positive association

B. Negative association

C. No association

D. Positive linear association

6. The table shows hours of sleep and quiz scores. Which point would you plot for Student C? Write it as (hours, score).

Student	A	B	C	D
Hours of sleep	8	7	6	9
Quiz score	90	85	82	94

7. What is an outlier in a scatter plot?

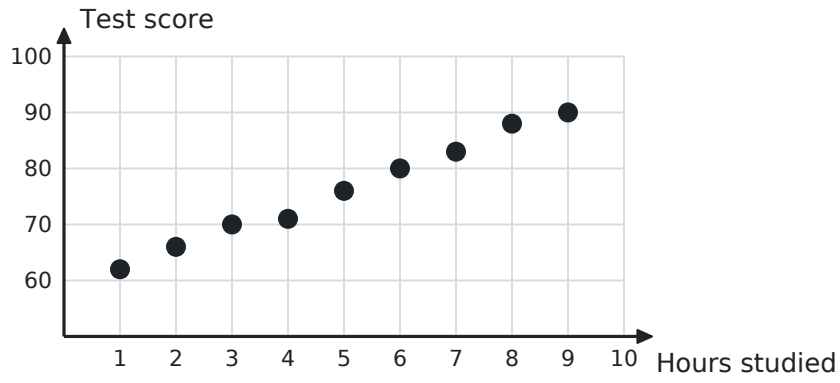
A. The point with the largest x-value

B. A point that is far from the pattern of the other points

C. A point that lies exactly on the trend

D. The point closest to the origin

8. How many students in the scatter plot scored above 80?



9. What does a negative association between two quantities mean?

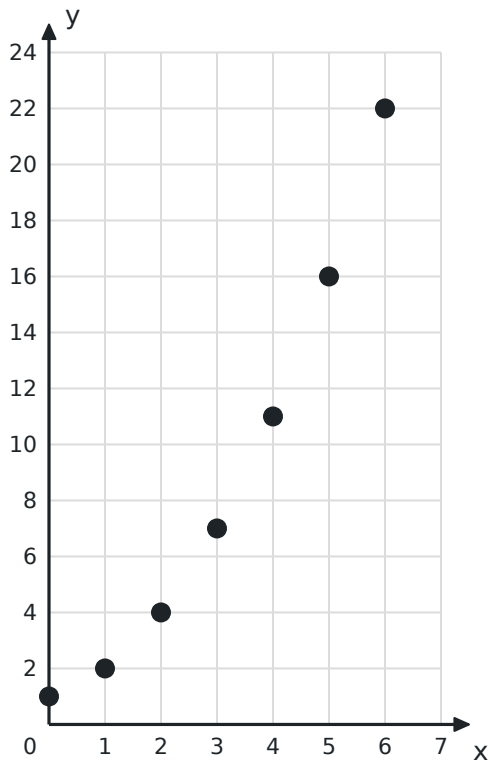
   A. As one quantity increases, the other tends to increase.

   B. Both quantities are negative numbers.

   C. The quantities have no relationship.

   D. As one quantity increases, the other tends to decrease.

10. Is the association in the scatter plot linear or nonlinear?



ALBERT

Name _____ Date _____

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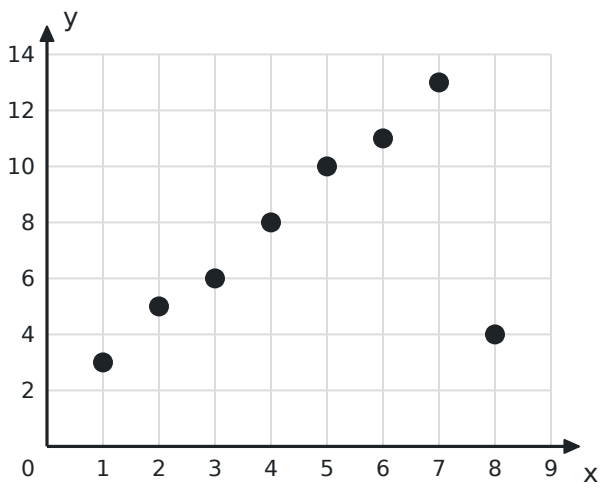
On Level

Grade-level practice.

1. Which description best fits the scatter plot?



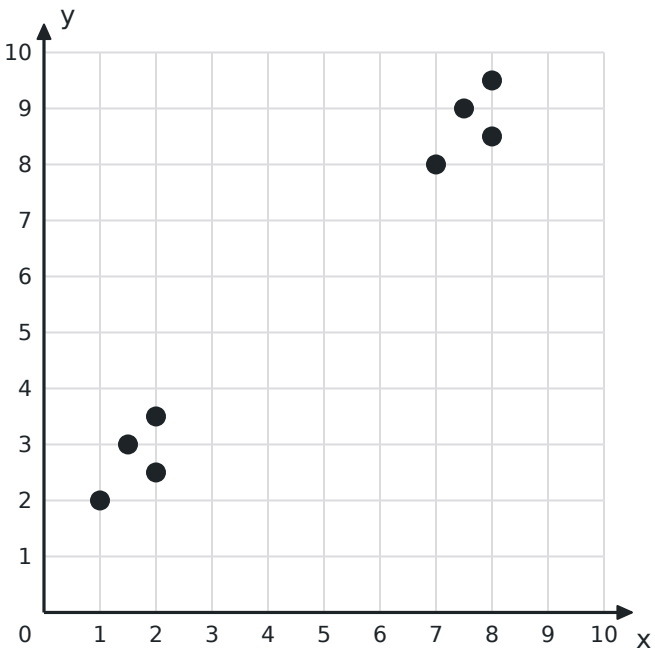
A. Negative linear association with one outlier

B. Positive linear association with one outlier

C. No association

D. Nonlinear association with no outliers

2. Which pattern does the scatter plot show?



A. A nonlinear association

B. A negative association

C. One outlier and no clusters

D. Two clusters

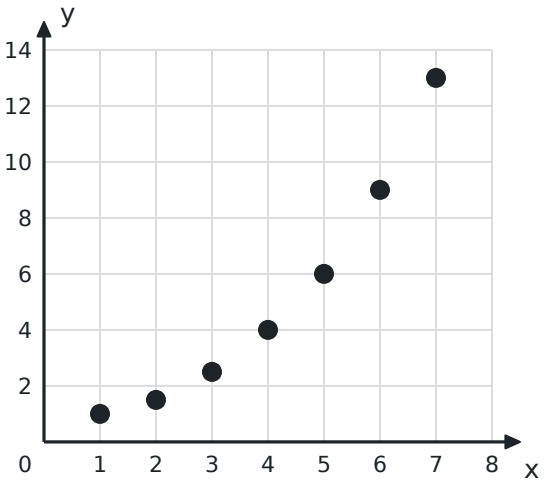
3. The table shows the ages and values of 6 used cars of the same model. Describe the association as positive, negative or none.

Age (years)	1	2	3	5	6	8
Value (thousands of dollars)	24	21	19	15	13	9

4. The table shows the number of hours 6 students practiced piano and the number of songs they learned. Which student is an outlier?

Student	Ava	Ben	Jun	Kai	Lia	Max
Hours	2	4	2	6	8	10
Songs	1	2	12	3	4	5

5. Which description best fits the scatter plot?



A. Positive nonlinear association

B. Positive linear association

C. Negative nonlinear association

D. No association

6. The scatter plot shows hours of practice per week and free throws made out of 20 for 8 players. Describe the association and any unusual features.



7. How many players in the scatter plot practiced more than 4 hours?



8. A scatter plot of hours of TV watched per week (x) and grade average (y) shows a negative association. Which statement is supported by the plot?

   A. Watching TV causes lower grades.

   B. There is no relationship between TV and grades.

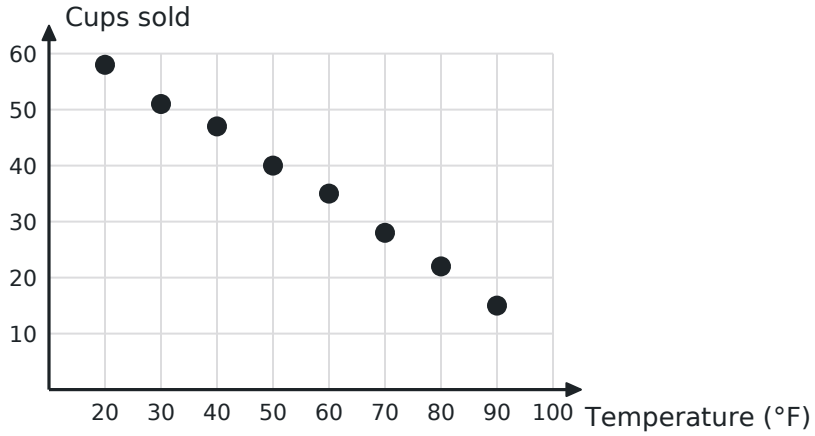
   C. Students who watch more TV tend to have lower grade averages.

   D. Every student who watches more TV has a lower grade average than every student who watches less.

9. Which pair in the table is an outlier? Give it as an ordered pair (x, y).

x	**1**	**2**	**3**	**4**	**5**	**6**
y	3	5	7	30	11	13

10. In the scatter plot of temperature and cups of hot cocoa sold, as the temperature goes from 20°F to 90°F, do the sales tend to go up or go down?



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Challenge

Multi-step and word problems that stretch it.

1. The table shows a car's speed and its stopping distance. Which description fits the data?

Speed (mph)	10	20	30	40	50	60
Stopping distance (ft)	5	12	23	37	55	77

   A. Negative linear association

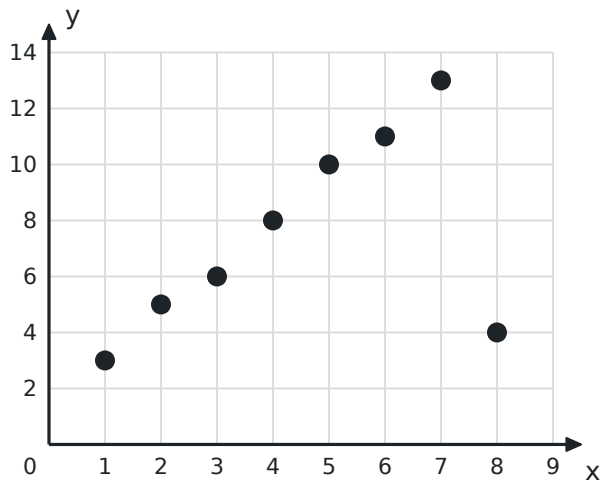
   B. Positive nonlinear association

   C. No association

   D. Positive linear association

2. Over a year, a town's ice cream sales and its number of sunburns show a positive association. Does eating ice cream cause sunburns? Explain.

3. In the scatter plot, if the outlier is removed, does the association look stronger or weaker?



4. Which pair of quantities would most likely show a negative association?

   A. Age of a child and height

   B. Number of pages in a book and its weight

   C. Hours worked and money earned

   D. Minutes of exercise per week and resting heart rate

5. The data points are (1, 2), (2, 4), (3, 6), (4, 8), (5, 25) and (6, 12). Which point is an outlier?

6. A car pool splits a 60-dollar gas bill equally among x people. Which describes the association between x and the cost per person?

People	1	2	3	4	5	6
Cost per person (dollars)	60	30	20	15	12	10

   A. Positive nonlinear association

   B. No association

   C. Negative nonlinear association

   D. Negative linear association

7. A scatter plot of hours of daylight (x) and hours of sleep (y) for a group of students shows no association. Which statement fits?

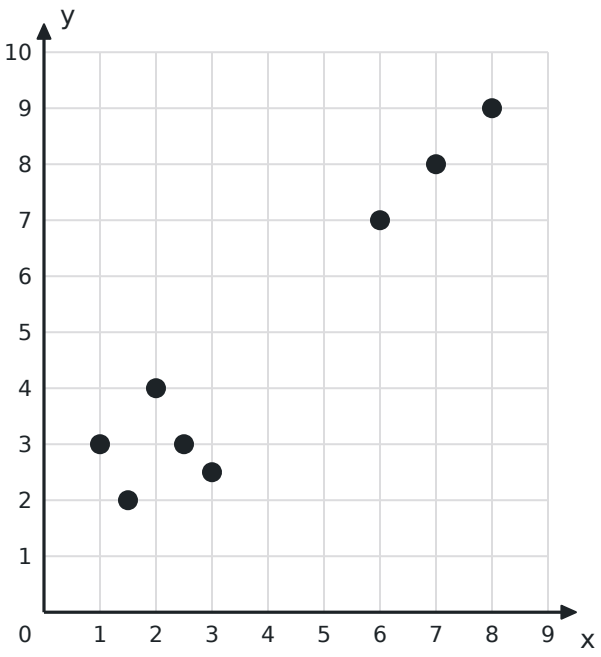
   A. Knowing the hours of daylight doesn't help predict a student's sleep.

   B. Students sleep more when there is more daylight.

   C. Students sleep less when there is more daylight.

   D. Every student sleeps the same amount.

8. How many of the points in the scatter plot have x-values between 1 and 3, inclusive?



9. Which description best fits the data (1, 2), (2, 4), (3, 8), (4, 16), (5, 32)?

   A. Positive nonlinear association

   B. Positive linear association

   C. Negative nonlinear association

   D. No association

10. Describe the patterns in the scatter plot.

