

Grade 8 · Scatter Plots and Association · Worksheet

Common Core 8.SP.A.1 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

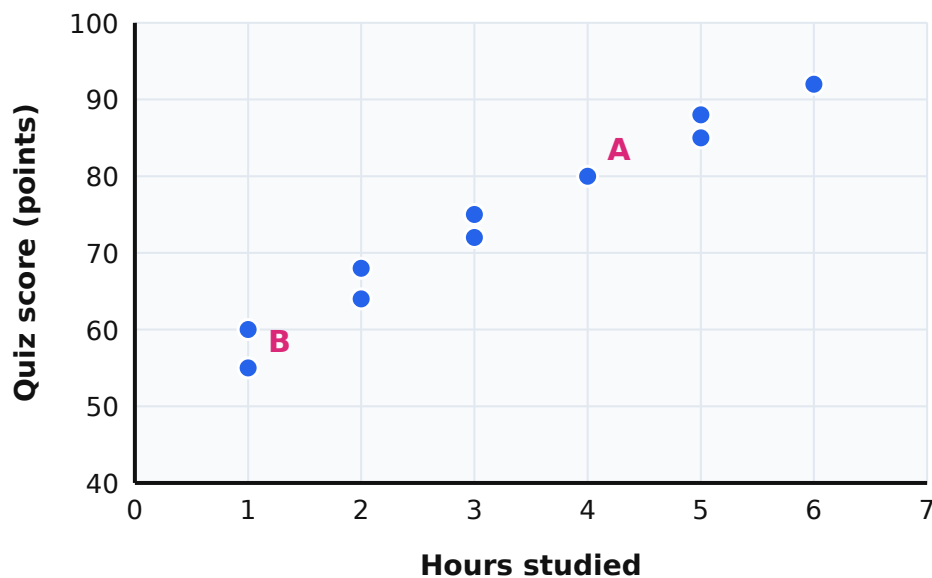
These 23 problems practice standard 8.SP.A.1: reading and constructing scatter plots, describing positive, negative and no association, telling linear from nonlinear patterns, and spotting clusters and outliers.

The problems start with reading points and move to plotting tables and explaining patterns in context. The last six are word problems with several parts.

Grade 8 Common Core: 8.SP.A.1

Problem 1: Read points on a scatter plot

The scatter plot shows hours studied and quiz scores for 10 students. Write the coordinates of point A and point B, and explain what each one means.

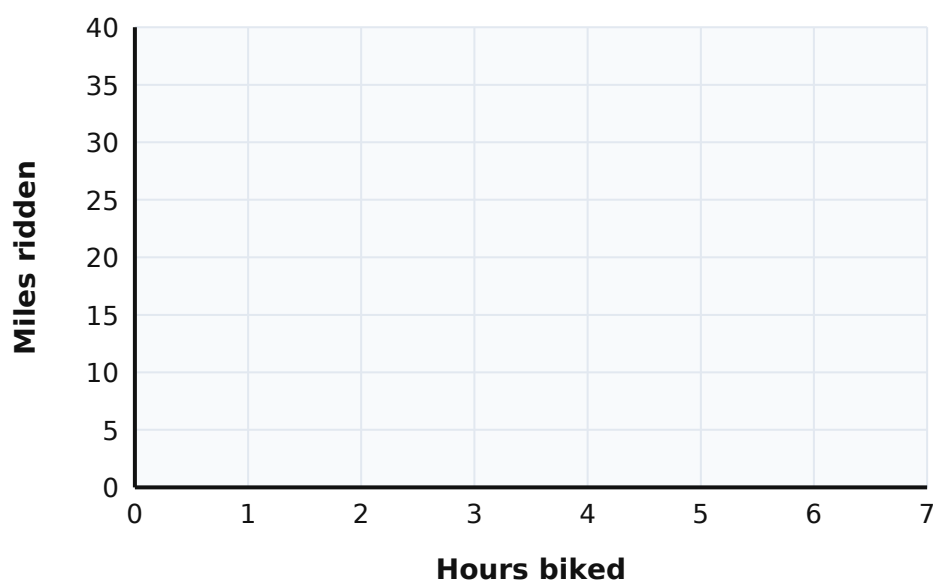


Hours studied and quiz scores.

Problem 2: Plot a table of data

The table shows how many hours Ethan biked and how many miles he rode on six trips. Plot the six points on the grid, then describe the association.

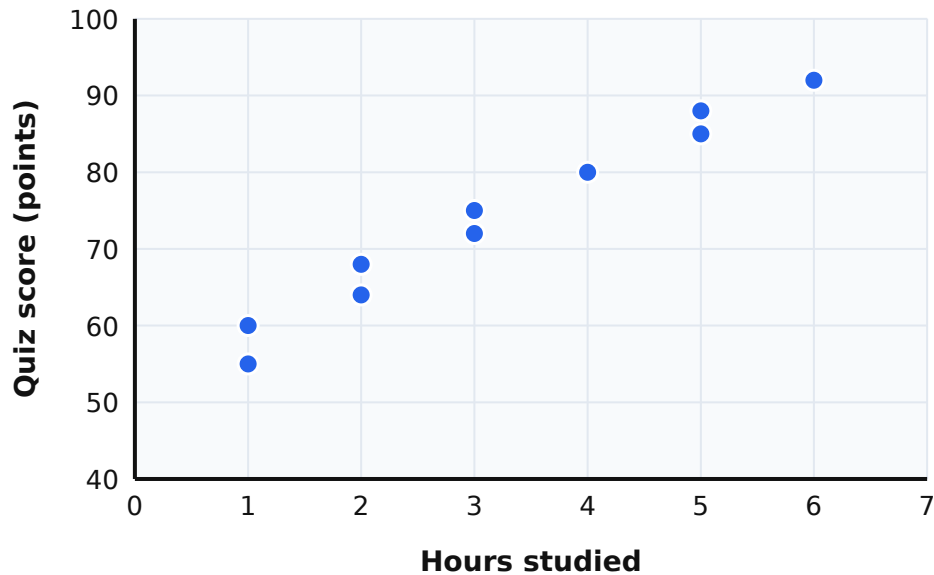
Hours	Miles
1	6
2	13
3	17
4	25
5	29
6	36



Blank grid for the biking data.

Problem 3: Describe a positive association

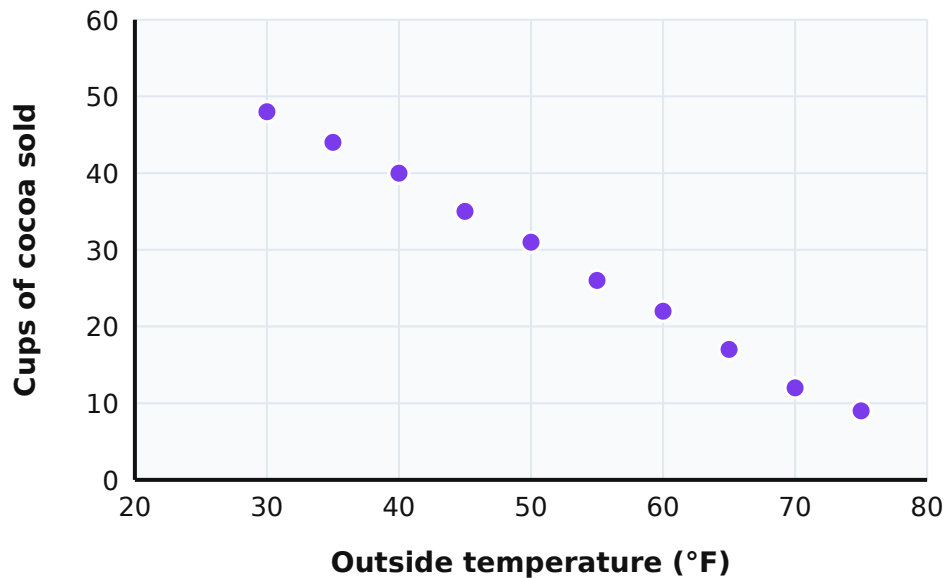
Describe the association between hours studied and quiz score in the scatter plot. Tell what it means in this situation.



Hours studied and quiz scores.

Problem 4: Describe a negative association

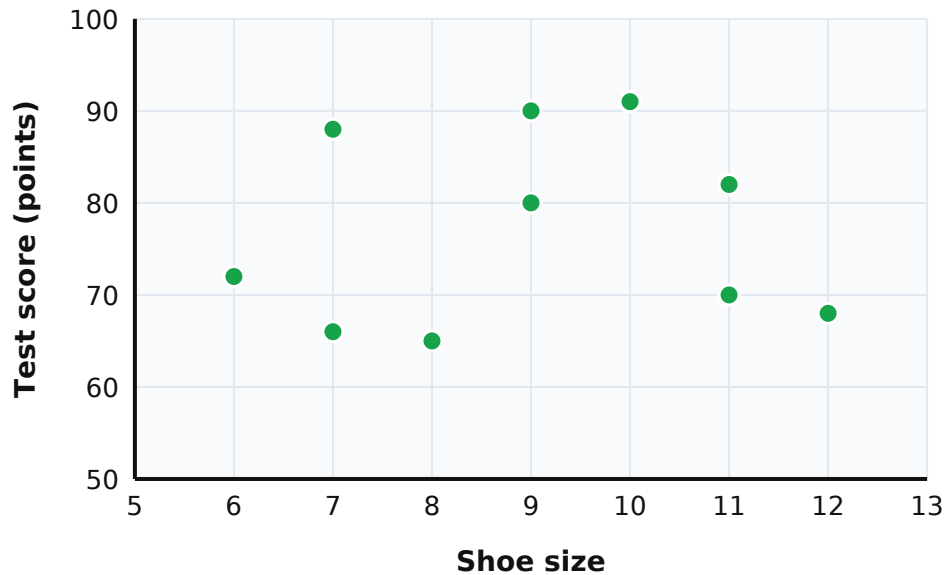
The scatter plot compares the outside temperature with the cups of cocoa a coffee shop sold. Describe the association.



Temperature and cocoa sales.

Problem 5: Describe no association

The scatter plot compares shoe size with test score for 10 students. Does it show an association? Explain.



Shoe size and test score.

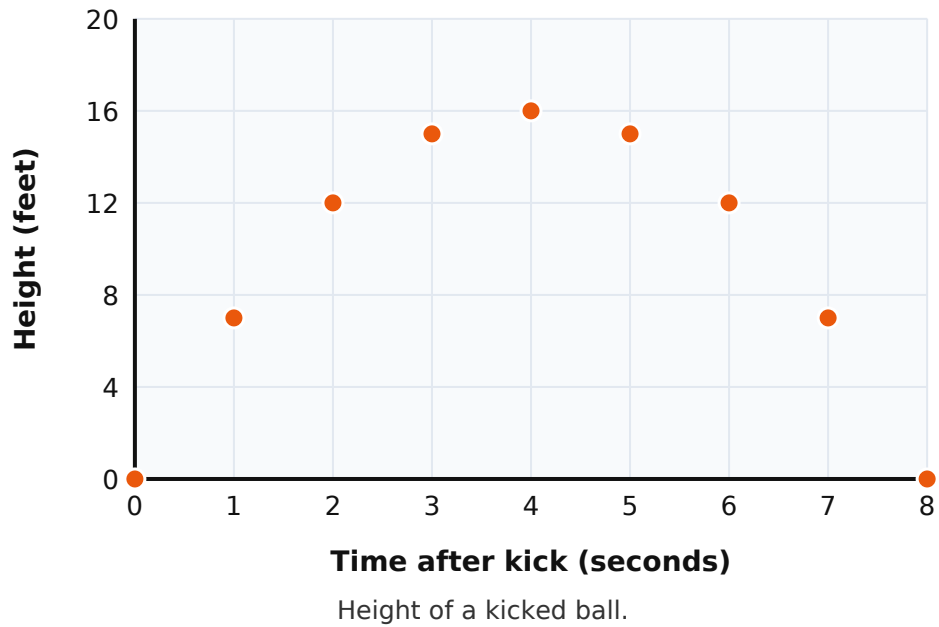
Problem 6: Name the association from a description

Name the association (positive, negative, or none) described in each statement.

- As the number of miles driven increases, the amount of gas left in the tank tends to decrease.
- Taller students tend to have longer arm spans.
- Knowing a student's birth month tells nothing about her height.

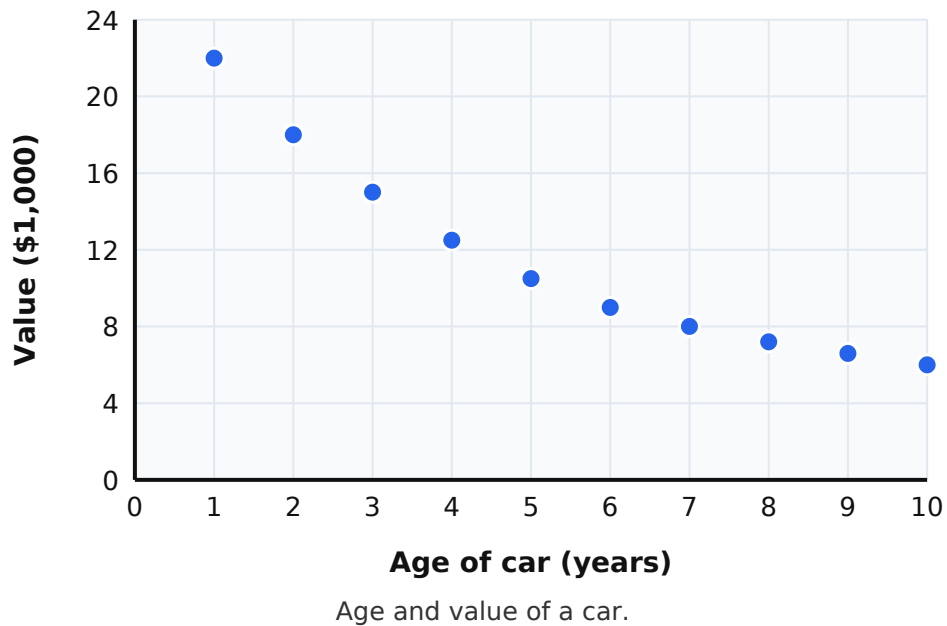
Problem 7: Recognize a nonlinear association

Sofia kicked a soccer ball. The scatter plot shows the height of the ball each second. Is the association linear or nonlinear? Why is it not positive or negative?



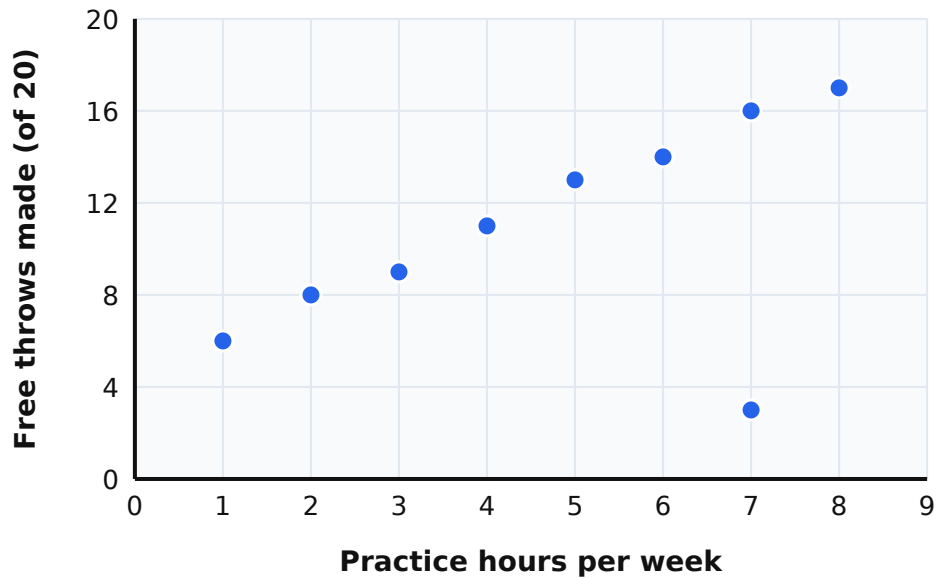
Problem 8: Describe a curved negative pattern

The scatter plot shows the value of a car as it ages. Describe the association.



Problem 9: Find the outlier

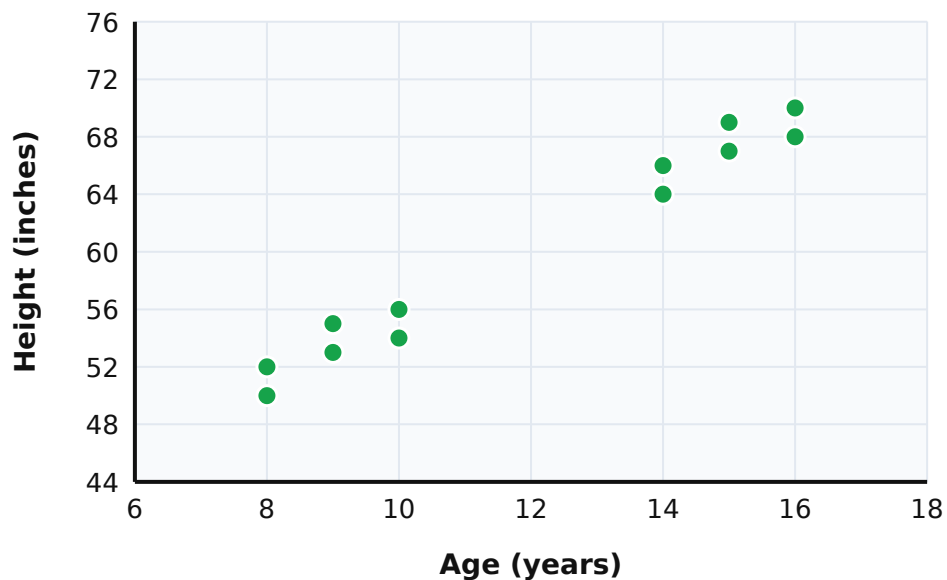
A coach plotted weekly practice hours and free throws made out of 20. Identify the outlier and explain how you know.



Practice and free throws.

Problem 10: Find the clusters

The scatter plot shows the ages and heights of 12 campers. Describe any clusters and the overall association.



Ages and heights of campers.

Problem 11: Predict the association

For each pair of variables, tell whether a scatter plot would most likely show a positive association, a negative association, or no association.

- The age of a puppy (in weeks) and its weight

- b. The number of absences and the final grade in a class
- c. A student's shoe size and the number of pets she has

Problem 12: Find the outlier in a table

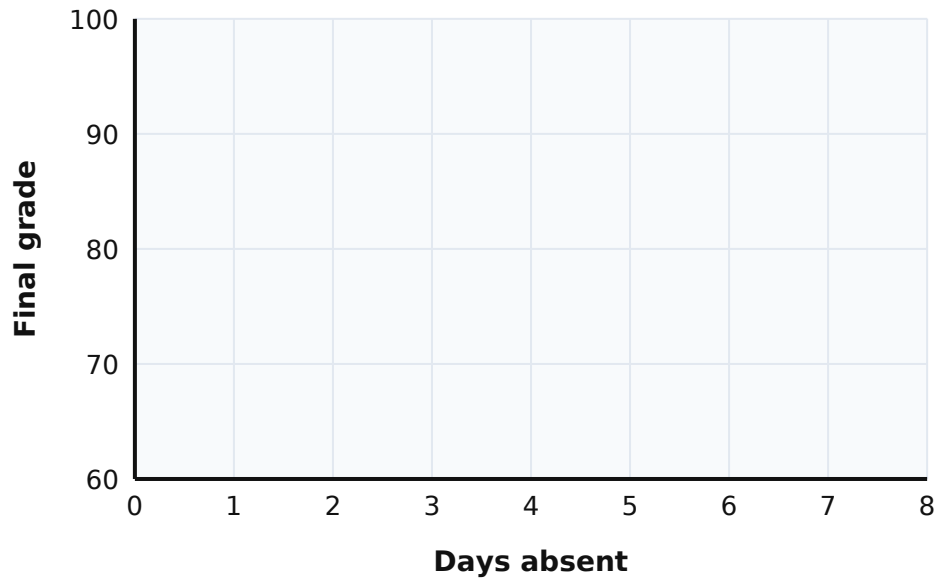
Noah recorded the weeks since planting and the height of a bean plant (in inches). One measurement is probably a mistake. Find it and explain.

Weeks	Height (in.)
1	3
2	5
3	6
4	8
5	19
6	11
7	12
8	14

Problem 13: Plot and describe a table

The table shows the number of days absent and the final grade for eight students. Plot the points and describe the association.

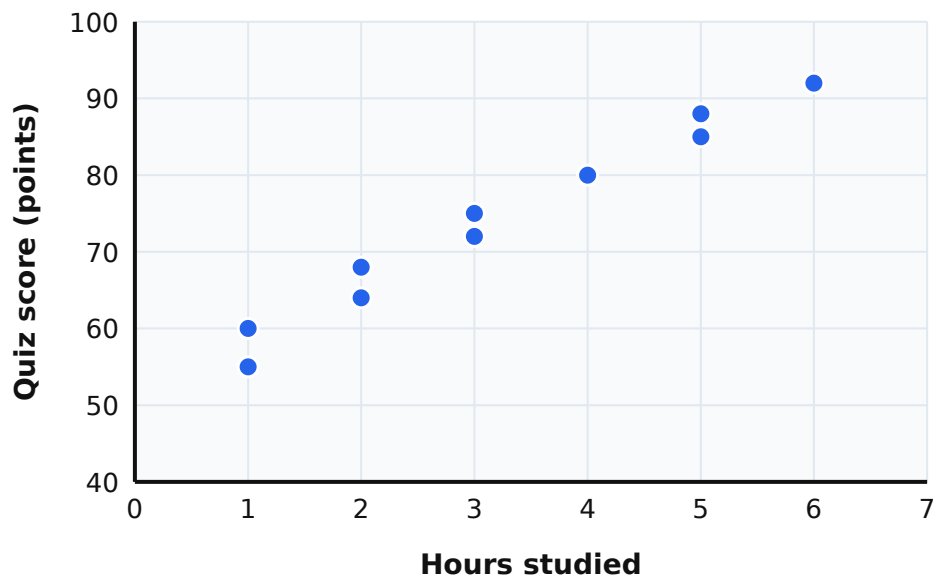
Days absent	Final grade
0	96
1	93
2	90
3	85
4	83
5	78
6	74
7	70



Blank grid for the absences data.

Problem 14: True or false about a plot

Use the scatter plot of hours studied and quiz scores. Tell whether each statement is true or false.

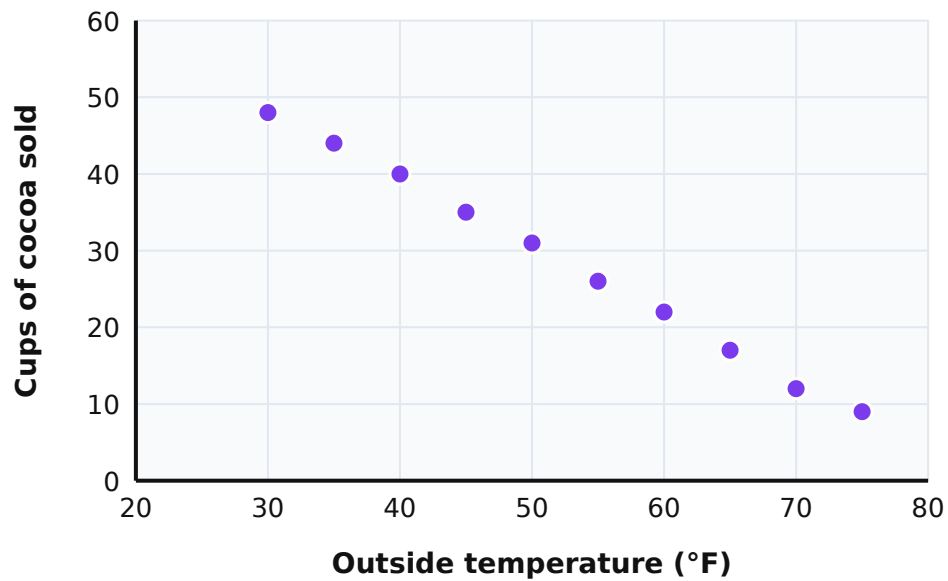


Hours studied and quiz scores.

- a. Every student who studied more than 4 hours scored above 80.
- b. Two students studied 3 hours and earned the same score.
- c. The plot shows a positive association.
- d. The student who studied 6 hours had the lowest score.

Problem 15: Find the mistake

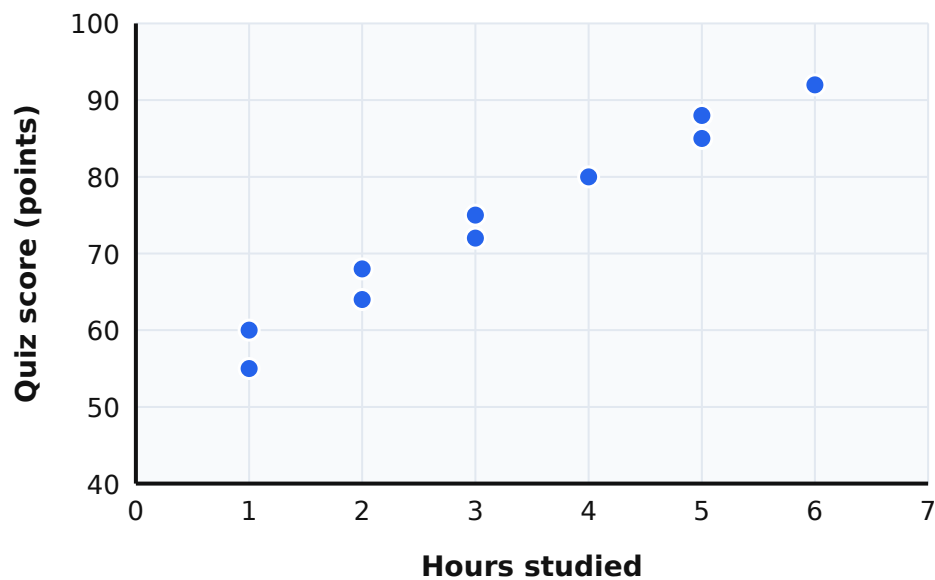
Jamal looked at the cocoa plot and said, "Temperature goes up and cups sold goes down, so this is a positive association." Explain his mistake.



Temperature and cocoa sales.

Problem 16: Count points that meet a condition

Use the plot of hours studied and quiz scores. (a) How many students scored at least 80 points? (b) How many students studied 2 hours or less?

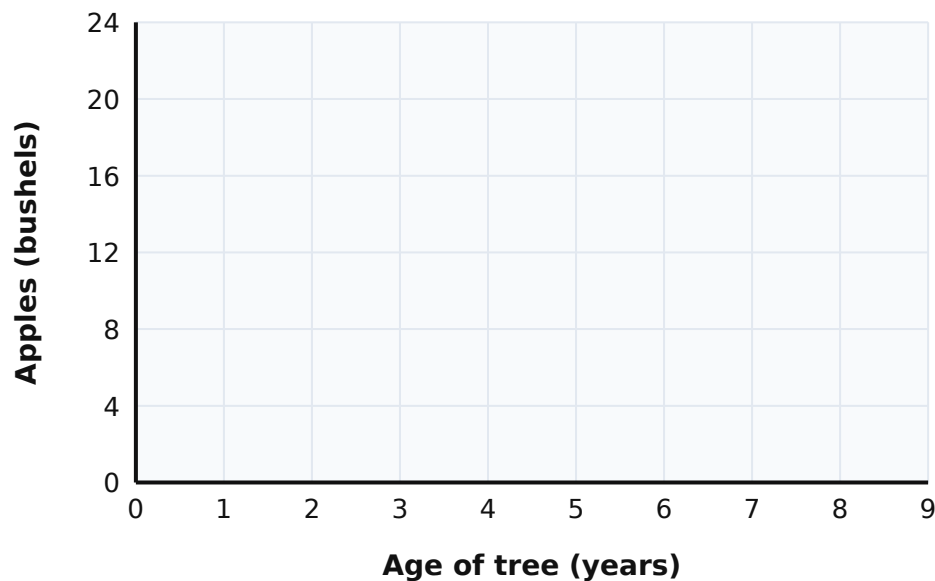


Hours studied and quiz scores.

Problem 17: Plot and describe a curved pattern

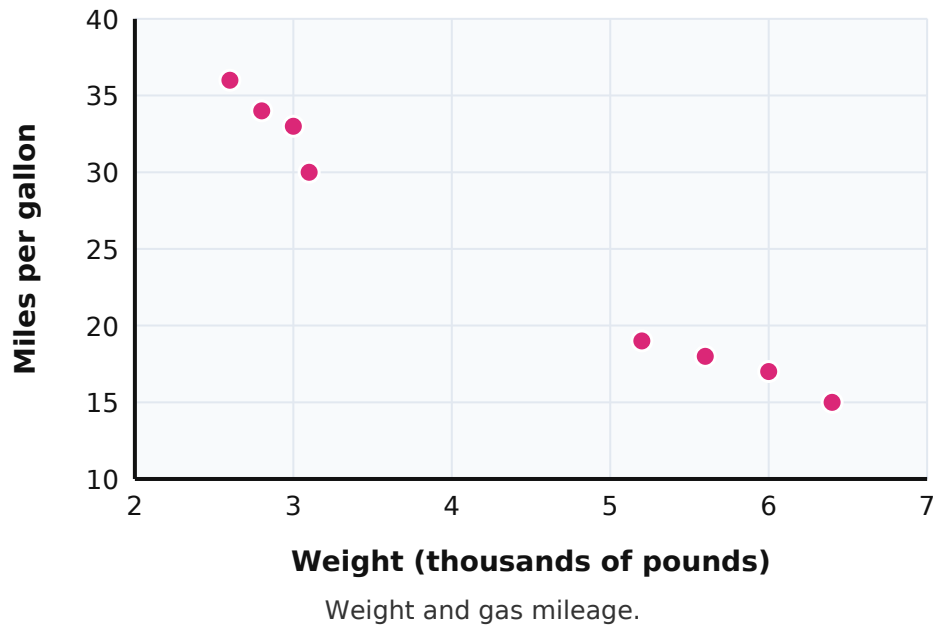
An orchard owner recorded the age of an apple tree and the bushels of apples it produced. Plot the points and describe the association.

Age (years)	Bushels
1	1
2	3
3	6
4	10
5	14
6	17
7	19
8	20



Problem 18: Clusters and association together

The scatter plot shows the weight and gas mileage of eight vehicles. Describe the clusters and the overall association, and suggest why the clusters exist.

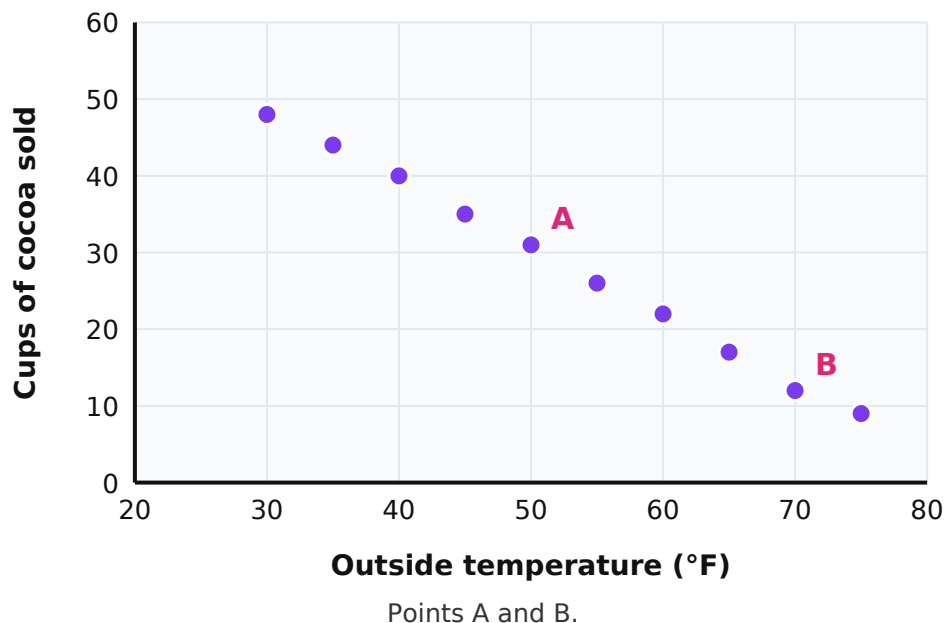


Problem 19: Association is not causation

A town found a positive association between monthly ice cream sales and monthly sunburn cases. Does buying ice cream cause sunburn? Explain.

Problem 20: Read the plot in context

The cocoa plot shows daily sales at different temperatures. (a) About how many cups were sold on the 50°F day? (b) About how many on the 70°F day? (c) How many more cups were sold on the cooler day?

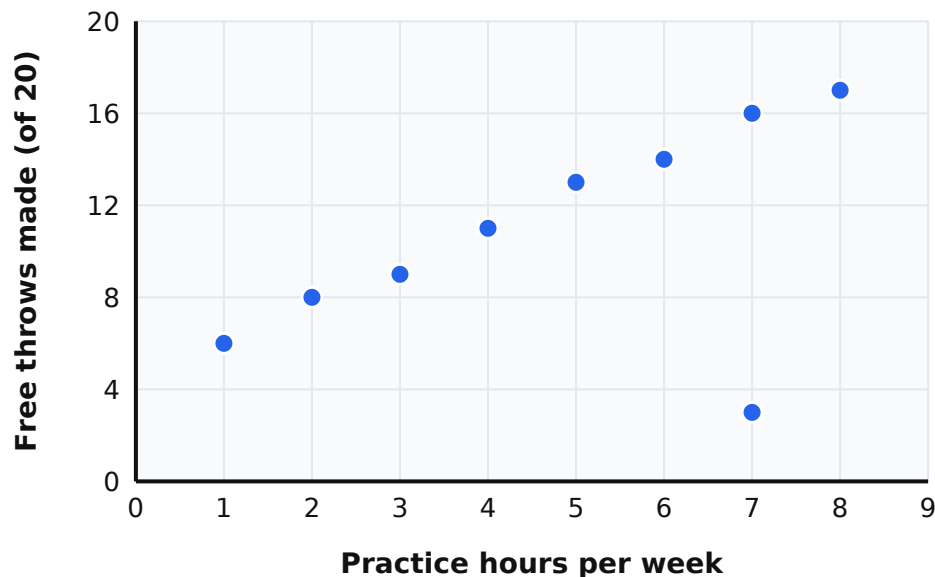


Problem 21: Write your own scenario

Describe a situation with a negative association between two variables, and list four data pairs that fit your situation.

Problem 22: Effect of an outlier

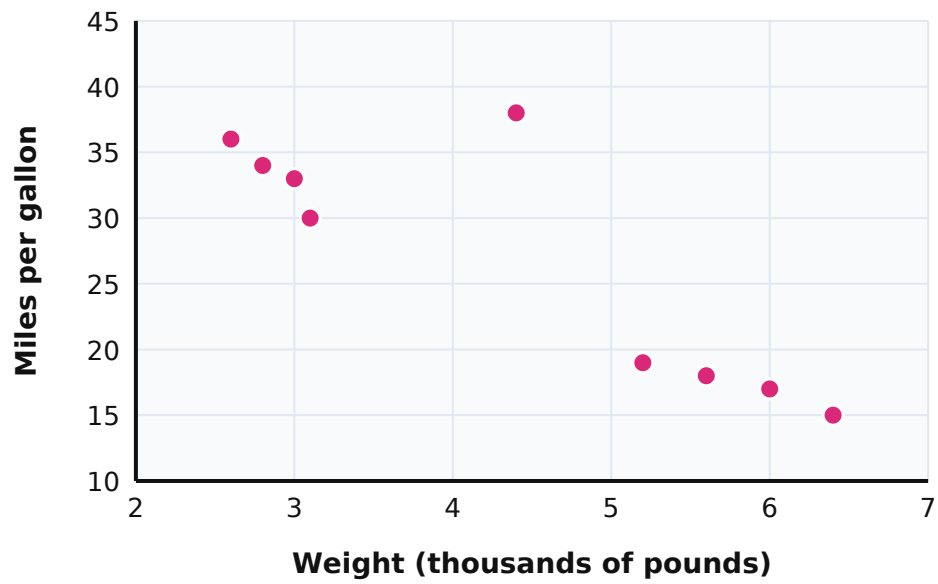
The coach learns that the player in the plot with 7 hours and 3 made shots was injured that week. (a) Which point is that? (b) Describe the association for the other eight players.



Practice and free throws.

Problem 23: Describe every feature

The plot shows nine vehicles. Describe the clusters, the outlier, and the overall association. Include the coordinates of the outlier.



Nine vehicles.