

Reading Scatter Plots and Spotting Patterns

Grade 8 math · Worksheet · Standards: 8.SP.A.1

Name: _____ Date: _____ Class: _____

These problems build and interpret scatter plots as described in standard 8.SP.A.1. Early problems name the axes and the direction of a pattern; later ones handle clusters, outliers, and curved patterns in real data.

Look at every graph from left to right, and describe direction, form, and unusual points in a full sentence.

Standards: 8.SP.A.1 · **Level:** Grade 8

Problem 1 Choose the axis (easy)

A teacher wants to see whether the number of hours students rehearsed for a school play affects the number of lines they forgot. Which variable should go on the x-axis?

Problem 2 Plot a table (easy)

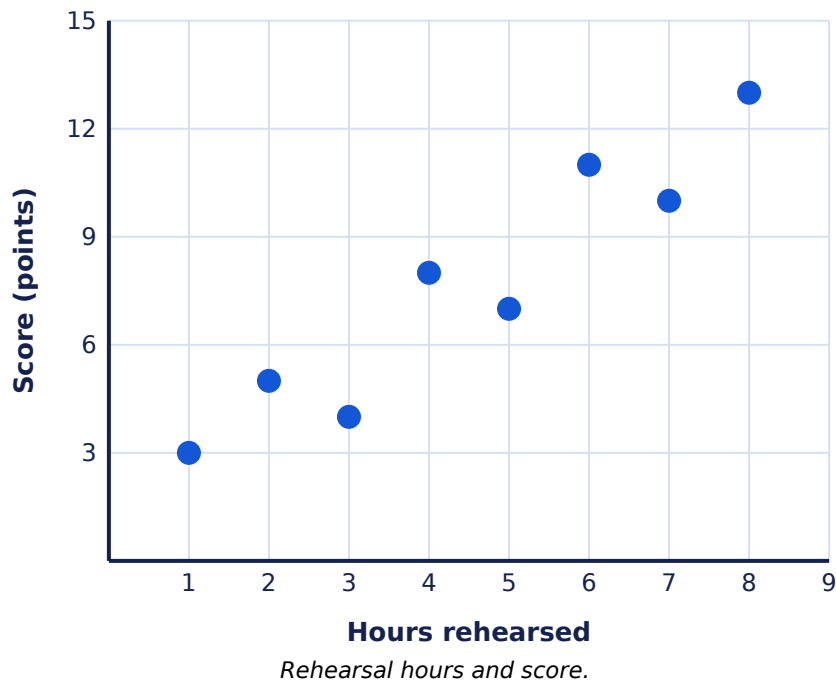
A table shows the age of a laptop in years and its resale value: (1, \$600), (2, \$520), (3, \$430), (4, \$350), (5, \$260). Write the ordered pairs, plot them, and describe the association.

Problem 3 Describe in words (easy)

As the number of rainy days in a month increases, the number of visitors to a water park decreases. What kind of association is this?

Problem 4 Read a rising plot (easy)

Describe the direction and the form of the association in the scatter plot.



Problem 5 No association (easy)

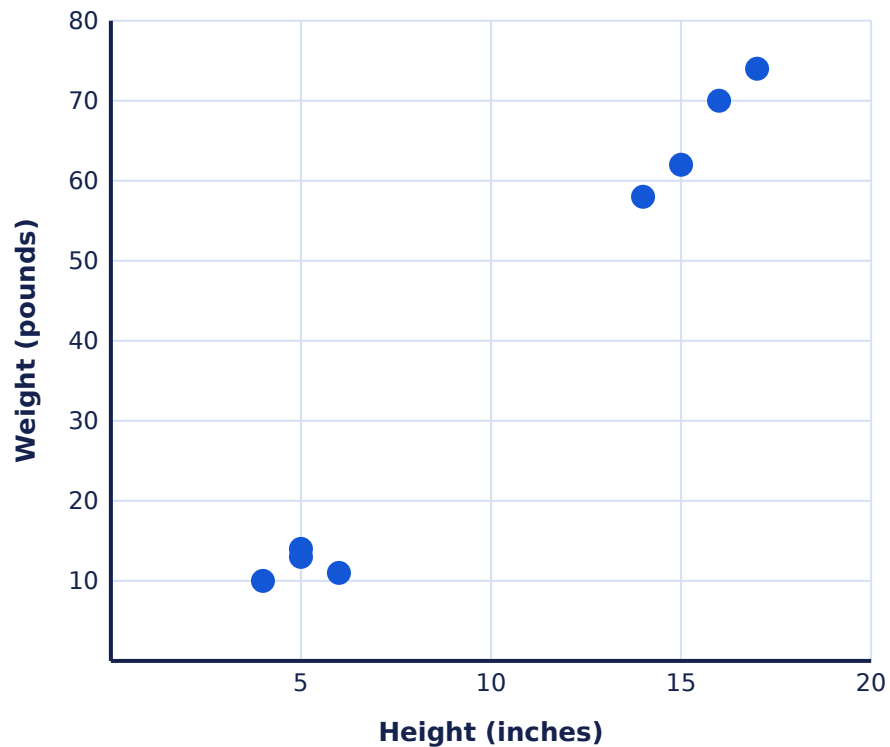
Which pair of variables would most likely show no association? (a) hours of daylight and temperature in a city; (b) a student's shoe size and the last digit of the student's locker number; (c) the age of a bicycle and its resale price.

Problem 6 Find the outlier (medium)

Pairs (x, y) : $(1, 3)$, $(2, 5)$, $(3, 7)$, $(4, 9)$, $(5, 25)$, $(6, 13)$. Which point is an outlier? Explain.

Problem 7 Two groups (medium)

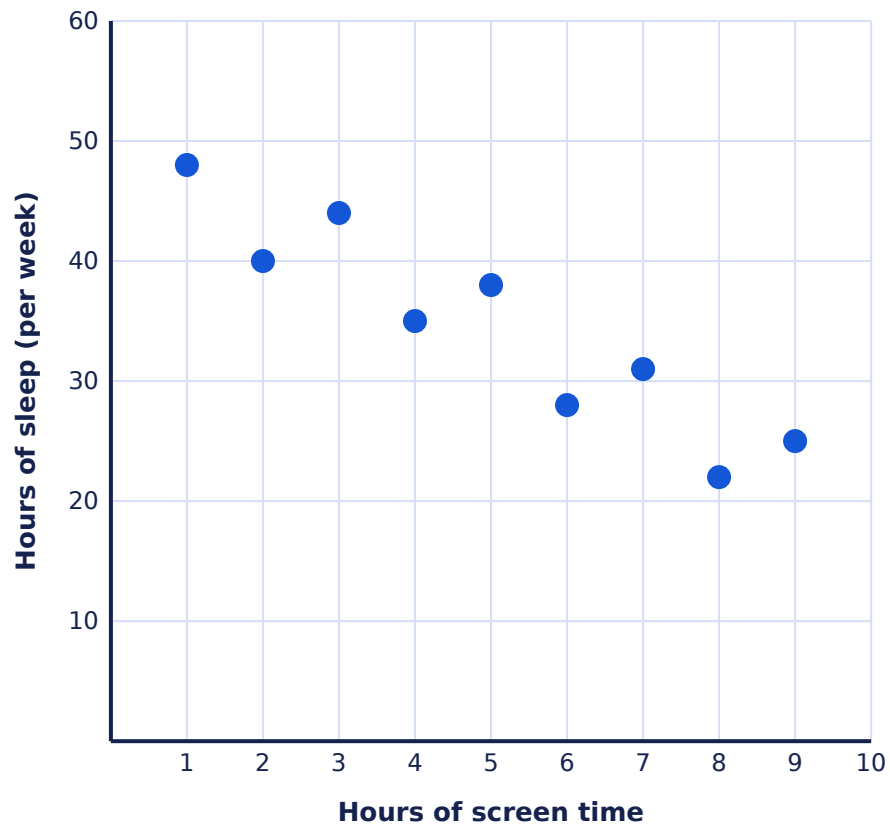
The scatter plot shows the heights and weights of eight dogs. Describe any clusters and the overall association.



Heights and weights of eight dogs.

Problem 8 Falling with spread (medium)

Describe the association in the scatter plot, including its direction, form, and strength.



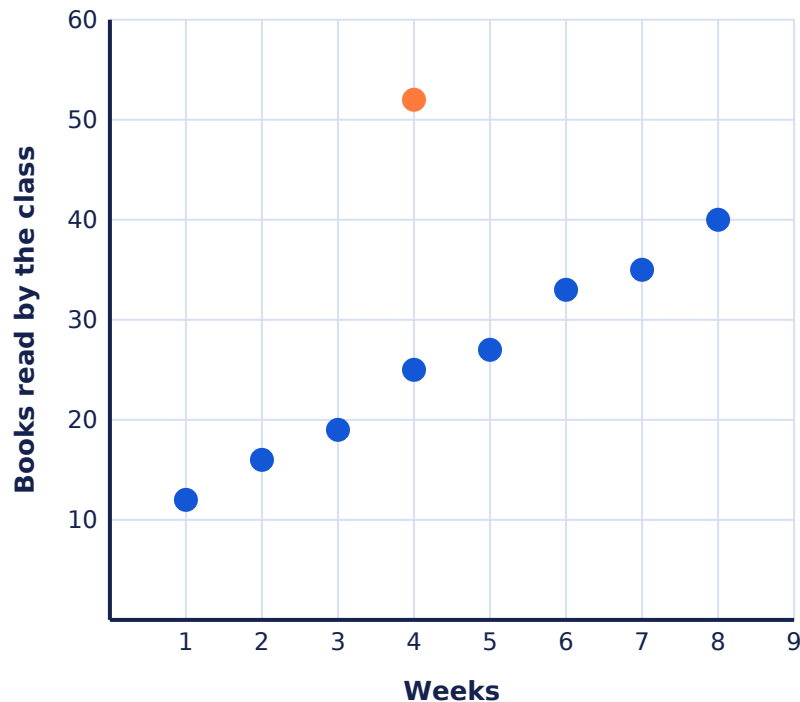
Screen time and weekly sleep.

Problem 9 Doubling table (medium)

Is the association in the table linear or nonlinear? (0, 1), (1, 2), (2, 4), (3, 8), (4, 16). Explain.

Problem 10 Spot the stray point (medium)

Which point in the scatter plot is an outlier? Give its coordinates and describe the pattern of the other points.



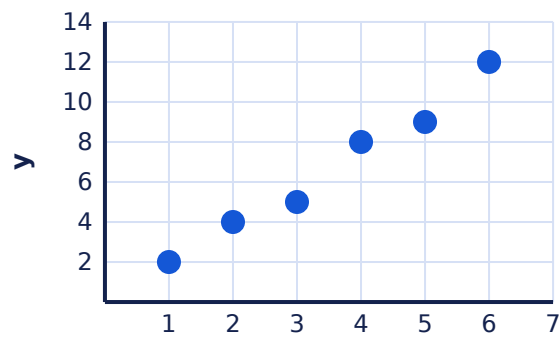
Weekly book totals for a class reading challenge.

Problem 11 Build a scatter plot (medium)

A table shows months of ownership and pounds of dog food used: (1, 5), (2, 9), (3, 12), (4, 15), (5, 22), (6, 24), (7, 28). Plot the points and describe the association.

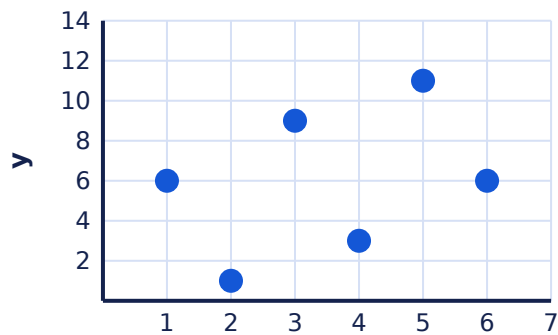
Problem 12 Strong or weak (medium)

Both scatter plots contain six points. Which plot shows a stronger association? Explain.



Plot A: x

Plot A.



Plot B: x

Plot B.

Problem 13 Curved description (medium)

On a scatter plot of the number of seconds since a hot drink was poured and its temperature, the points fall quickly at first and then level off. Describe the association.

Problem 14 Effect of an outlier (hard)

A scatter plot of study hours and test scores for 12 students shows a clear positive linear pattern, except one student who studied 6 hours and scored 20. Explain how that point changes how the association looks and what you should do before drawing a conclusion.

Problem 15 Lemonade stand (hard)

A lemonade stand records the temperature and cups sold: (62, 41), (66, 47), (70, 55), (73, 60), (77, 68), (80, 73), (84, 81), (88, 90), (81, 150). Plot the data, describe the association, and identify any outlier. What might explain it?

Problem 16 Game downloads (hard)

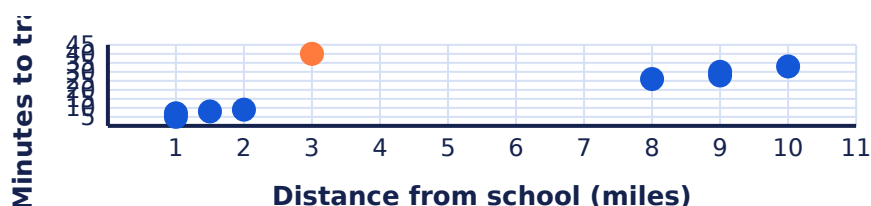
The table shows months since a mobile game was released and its weekly downloads in thousands: (1, 980), (2, 700), (3, 520), (4, 400), (5, 330), (6, 290). Describe the association.

Problem 17 Plant growth table (hard)

Sunlight per day (hours) and plant height (inches): (2, 5.1), (3, 6.2), (4, 8.0), (5, 9.1), (6, 10.2), (7, 11.9), (8, 13.0), (9, 14.1), (10, 15.2), (6, 2.0). Describe the association and name the outlier.

Problem 18 Commute times (hard)

The scatter plot shows the distance from school and the time to travel for nine students. Describe the two clusters, the outlier, and the association in context.



Commutes of nine students.

Problem 19 Cooling coffee (hard)

A cafe records the temperature of a cup of coffee every 5 minutes: (0, 190), (5, 150), (10, 122), (15, 102), (20, 88), (25, 79), (30, 72). Describe the association and explain why a straight line would be a poor model.

Problem 20 Who is right? (hard)

A scatter plot shows points that rise and then fall like an arch. Mia says the association is negative because the last point is lower than the first. Ava says the association is nonlinear. Who is correct? Explain.