

Reading Scatter Plots and Spotting Patterns

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

Name: _____ Date: _____ Class: _____

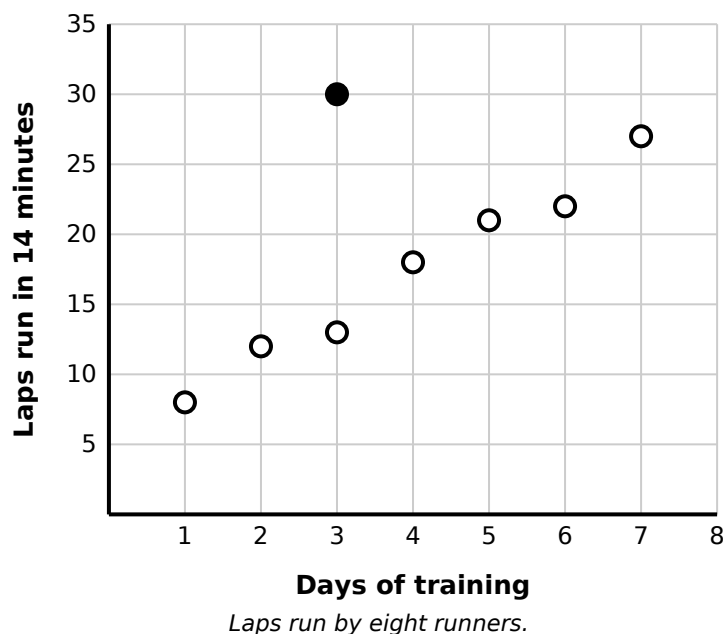
This test covers building and describing scatter plots: direction, form, strength, clusters, and outliers. It has 8 questions worth 20 points and should take about 45 minutes. Use complete sentences when you describe an association.

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

Time: 45 minutes · 8 questions · Total: 20 points · Calculator: as allowed by your teacher

Question 1 Reading a scatter plot (3 points)

Eight runners trained for different numbers of days, and the graph shows how many laps each ran in 14 minutes.



- Describe the direction and form of the association. (1 point)
- Identify any outlier. (1 point)
- Is the association strong or weak for the points that follow the pattern? Explain. (1 point)

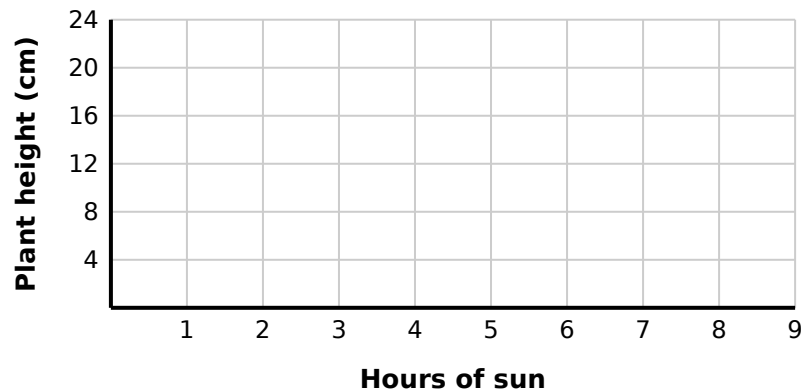
Question 2 Name the association (2 points)

Describe each situation as a positive association, a negative association, or no association.

- The age of a used car and its selling price (1 point)
- The height of a student and the student's favorite number (1 point)

Question 3 Plot the data (3 points)

Plant heights after different amounts of daily sun: (2, 6), (3, 9), (4, 10), (5, 13), (6, 15), (7, 16), (8, 20) with hours of sun first.



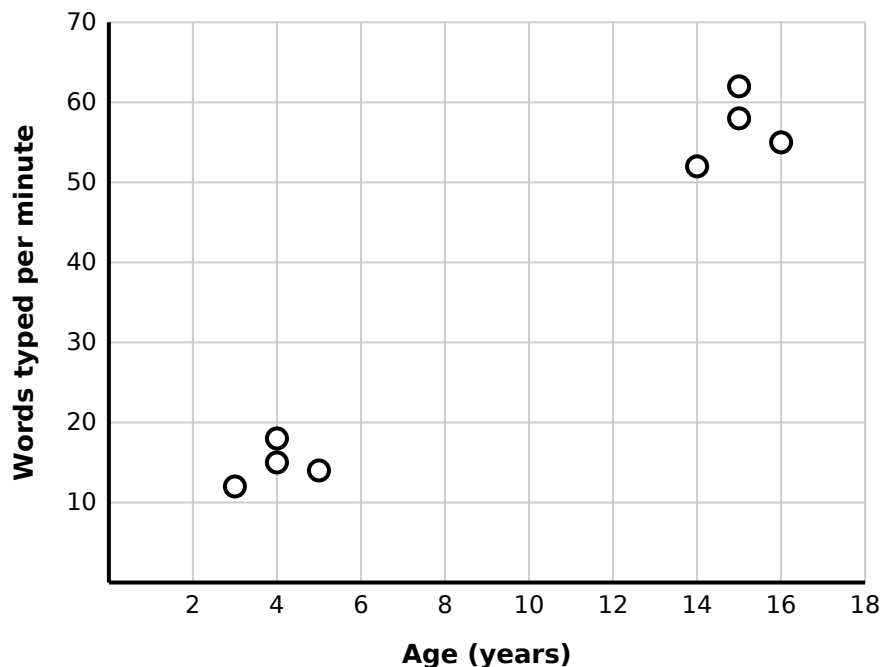
- Plot the seven points on the grid. (2 points)
- Describe the association. (1 point)

Question 4 Line or curve? (2 points)

Pairs (0, 2), (1, 3), (2, 6), (3, 11), (4, 18) are plotted. Is the association linear or nonlinear? Use the differences in y to explain.

Question 5 Clusters and gaps (3 points)

The scatter plot shows the age of eight students and their typing speed.



- Describe the two clusters. (2 points)
- Describe the overall association. (1 point)

Question 6 Strong or weak (2 points)

In scatter plot A the points lie close to a rising line. In scatter plot B the points rise in general but are spread widely around the line.

- a. Which plot shows the stronger association? *(1 point)*
- b. Explain your choice. *(1 point)*

Question 7 Study time data (3 points)

Hours studied and test grade for eight students: (0.5, 55), (1, 60), (1.5, 68), (2, 70), (2.5, 77), (3, 80), (3.5, 86), (4, 90), plus one student at (2, 30).

- a. Describe the association shown by the main group. *(1 point)*
- b. Name the outlier. *(1 point)*
- c. Give a possible reason for the outlier. *(1 point)*

Question 8 Tree growth (2 points)

A scatter plot of the age of a tree and the width of its trunk shows points that rise quickly at first and then rise more slowly. Describe the association.