

Reading Scatter Plots and Spotting Patterns

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

Award points as shown in each scoring note. Accept any reasonable wording that names the direction, the form, and the unusual features, and accept any sensible explanation for an outlier that refers to the context.

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

Question 1 Reading a scatter plot (3 points)

- (a) The points rise from left to right along a line: **positive linear association**.
- (b) The point (3, 30) is far above the others: **outlier (3, 30)**.
- (c) The other seven points lie close to a rising line, so the association is **strong**.

Scoring: 1 point per part.

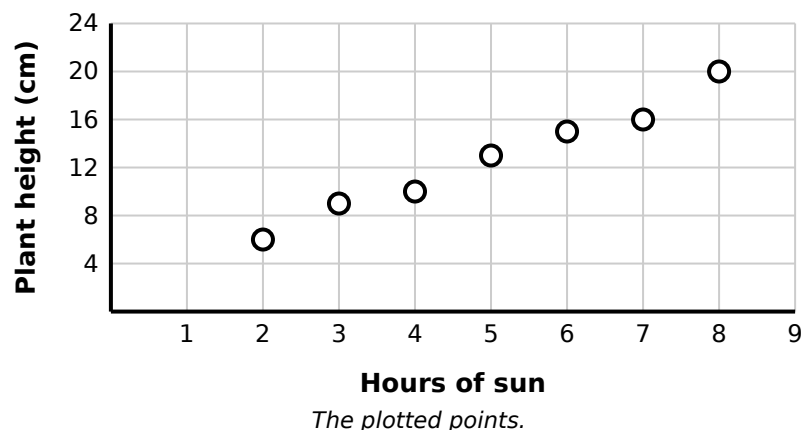
Question 2 Name the association (2 points)

- (a) Older cars sell for less: **negative association**.
- (b) These have nothing to do with each other: **no association**.

Scoring: 1 point per part.

Question 3 Plot the data (3 points)

- (a) Plot each pair: hours across, height up.



(b) The points rise and stay near a line: **positive linear association**.

Scoring: part (a) 2 points for all seven points (1 point for at least five); part (b) 1 point.

Question 4 Line or curve? (2 points)

The increases in y are 1, 3, 5, and 7. They are not constant, so the points curve upward.

Nonlinear (and positive)

Scoring: 1 point for the differences, 1 point for the conclusion.

Question 5 Clusters and gaps (3 points)

(a) One cluster has ages 3 to 5 with 12 to 18 words per minute. A second cluster has ages 14 to 16 with 52 to 62 words per minute. A wide gap separates them.

(b) **Positive association:** older students type faster.

Scoring: part (a) 1 point for each cluster described with ages and speeds; part (b) 1 point.

Question 6 Strong or weak (2 points)

(a) **Plot A**

(b) Points that cluster tightly around a line show a stronger association than points that are widely scattered.

Scoring: 1 point per part.

Question 7 Study time data (3 points)

(a) The main points rise along a line: **positive linear association**.

(b) **(2, 30)**, far below the pattern for 2 hours of study.

(c) Accept any reasonable reason, such as **the student was ill or skipped part of the test**.

Scoring: 1 point per part.

Question 8 Tree growth (2 points)

The points rise, so the association is positive. The rise slows, so the points follow a curve.

Positive nonlinear association

Scoring: 1 point for positive, 1 point for nonlinear.