

Trend Spotters

Read scatterplots and justify the pattern

GRADE 8 • 8.PS.3.d

8.PS.3.d "Make observations about a set of data points in a scatterplot as having a positive linear relationship, a negative linear relationship, or no relationship"

NAME _____

DATE _____

BUILD UNDERSTANDING

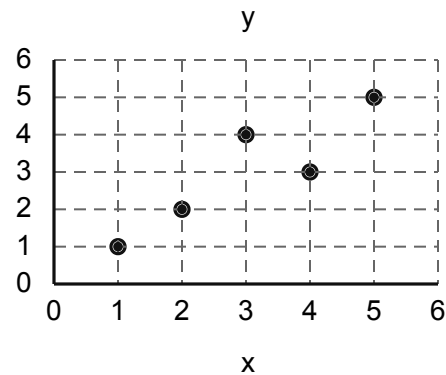
A positive linear relationship generally rises left to right; a negative linear relationship generally falls. A cloud with no consistent pattern suggests no relationship. These plots focus on those three cases. Judge the whole cloud, not isolated pairs of points. Read and explain each supplied plot.

WORKED EXAMPLE

Describe the overall relationship in this scatterplot.

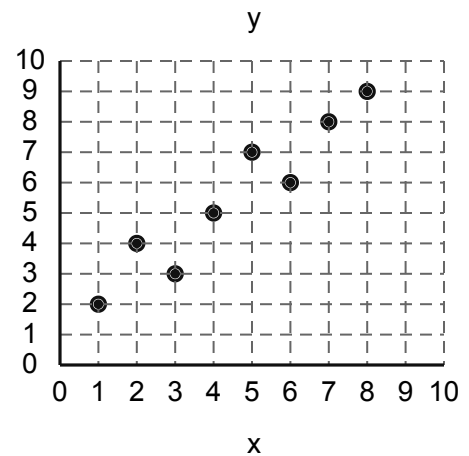
1. Read from left to right and consider the whole cloud.
2. Small departures from a line do not erase the overall upward trend.

Answer: Positive linear relationship: y tends to increase as x increases.

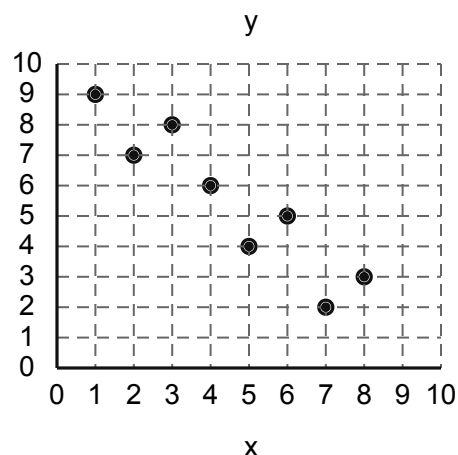


PRACTICE 4 problems

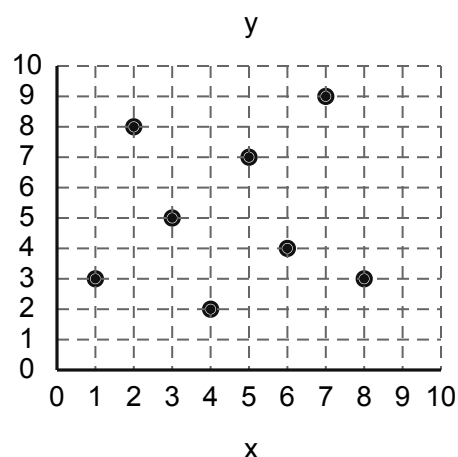
- 1** Name the relationship and support your observation using two regions of the plot.



- 2** Name the relationship. Explain what usually happens to y as x increases.



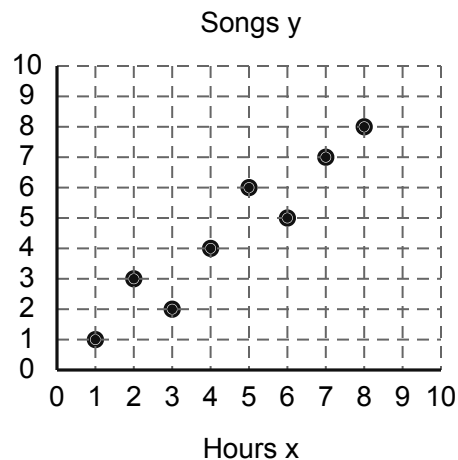
- 3** Name the relationship. Explain why one high point does not determine the overall pattern.



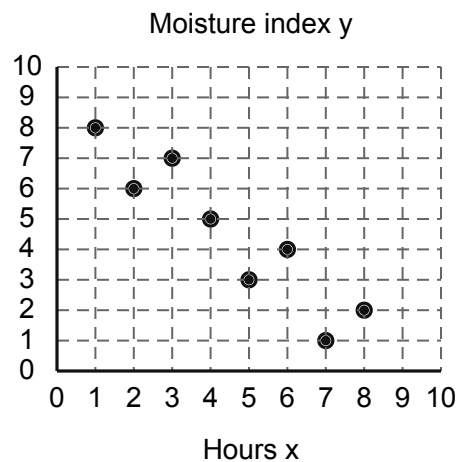
- 4** Compare the scatterplots in Practices 1 and 2. Both have points that do not fall exactly on a line. Explain why each can still show a linear relationship.

APPLY IT Show your work

- 1** The plot records weekly practice hours x and completed songs y for eight students. Name the relationship and describe it in this context. Does this plot alone prove that more practice caused more completed songs?

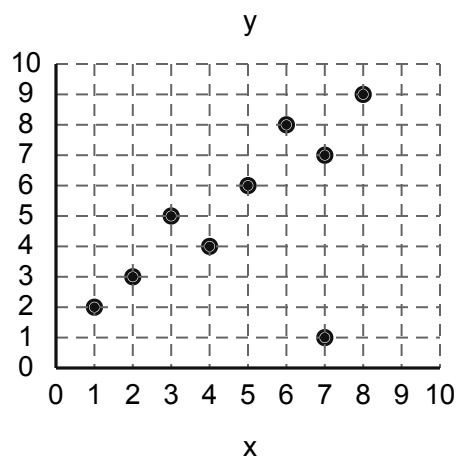


- 2** For eight readings, x is hours since watering and y is a soil moisture index. Name the relationship and describe what the plot suggests.



CHALLENGE One step up

Name the overall relationship. Identify the point far from the main cloud and explain why considering all points is better than using only two selected points.



Require observations from the actual plots. Do not require correlation calculations. All data are simulated. Accept equivalent descriptions that clearly distinguish positive linear, negative linear and no clear relationship. A relationship does not by itself establish cause.

PRACTICE 1

Positive linear relationship: small x-values have mostly low y-values; large x-values have mostly high y-values.

PRACTICE 2

Negative linear relationship; y generally decreases as x increases.

PRACTICE 3

No clear relationship: low and high y-values appear at small and large x-values without a consistent trend.

PRACTICE 4

Practice 1 has an overall upward cloud and Practice 2 a downward cloud; linear relationships need not put every point on one exact line.

APPLY IT 1

Positive linear relationship: students with more practice hours tended to complete more songs. The plot alone does not establish cause.

Other differences between students could affect both practice and performance.

APPLY IT 2

Negative linear relationship; later readings tend to have lower moisture values.

The cloud slopes down overall despite small fluctuations.

CHALLENGE

Positive linear relationship with unusual point (7, 1). Most points follow an upward trend; selecting only two could hide that pattern.