LESSON MAKER PRO

Spot the Pattern

Read and describe relationships in data.

HIGH SCHOOL · FA.S.41

FA.S.41 "Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association..."

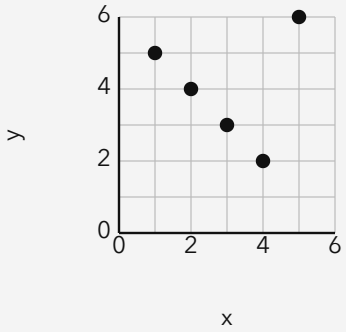
NAME _____ **DATE** _____

THE BIG IDEA

A scatter plot places one dot at each (x, y) pair. Dots that rise from left to right show positive association, while dots that fall show negative association. A nearly straight pattern is linear; a dot far from the pattern is an outlier.

WORKED EXAMPLE

Describe the main pattern and identify the outlier.



1. Follow the four dots that form a nearly straight line.
2. They fall from left to right, so the main association is negative and linear.
3. The dot at (5, 6) is far from that line.

Answer: Negative linear association; outlier: (5, 6).

PRACTICE 4 problems

1 If plotted, would (1, 1), (2, 3), (3, 5), (4, 7) show positive or negative association?

ANSWER _____

2 If plotted, would (1, 9), (2, 7), (3, 5), (4, 3) show positive or negative association?

ANSWER _____

3 If plotted, would (1, 1), (2, 4), (3, 9), (4, 16) make a linear or nonlinear pattern?

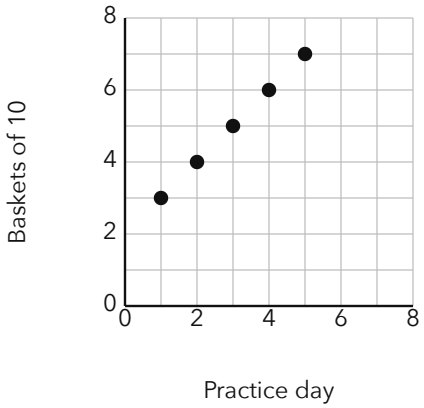
ANSWER _____

4 Which point would be an outlier: (1, 2), (2, 3), (3, 4), (4, 5), or (2, 9)?

ANSWER _____

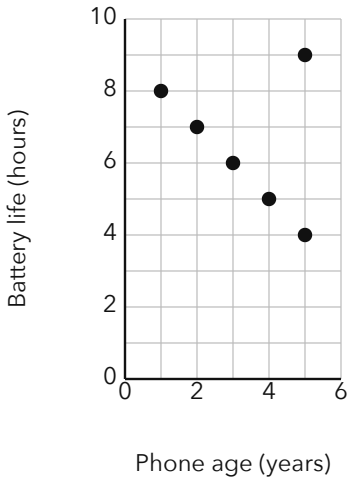
APPLY IT Show your work

1 Maya records baskets made out of 10 on each practice day. Describe the association. Predict her baskets on day 6.



ANSWER _____

2 A class compares phone age with battery life. Identify the outlier and describe the association of the other points.



ANSWER _____

CHALLENGE One step up

Two gamers log levels cleared after practice days 1, 2, 3, and 4. Gamer A clears 2, 4, 6, and 8 levels. Gamer B clears 2, 3, 5, and 8 levels. Whose plot is nonlinear? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Spot the Pattern

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	If plotted, would (1, 1), (2, 3), (3, 5), (4, 7) show positive or negative association?	**Positive association.**
2	If plotted, would (1, 9), (2, 7), (3, 5), (4, 3) show positive or negative association?	**Negative association.**
3	If plotted, would (1, 1), (2, 4), (3, 9), (4, 16) make a linear or nonlinear pattern?	**Nonlinear.**
4	Which point would be an outlier: (1, 2), (2, 3), (3, 4), (4, 5), or (2, 9)?	**(2, 9).**

PART 2 · APPLY IT

1. **Positive linear association; 8 baskets on day 6.** The dots rise in a straight pattern. Baskets made increase by 1 each day, so the prediction for day 6 is 8.
2. **Outlier: (5, 9); the other points show negative linear association.** Five dots fall in a straight pattern as phone age increases. The dot at (5, 9) is far above that pattern.

CHALLENGE

Gamer B's plot is nonlinear. B's levels increase by 1, then 2, then 3, so the points do not form a straight line.

Accept equivalent descriptions of rising or falling linear patterns. For the challenge, accept a clear explanation that Gamer B's increases are not constant.