LESSON MAKER PRO

Line Fit Lab

Compare models by checking vertical gaps.

GRADE 8 · 8.DS.B.3

8.DS.B.3 "Compare the fit of different linear models shown on scatter plots of the same data by describing the overall pattern and the closeness of data points to each line."

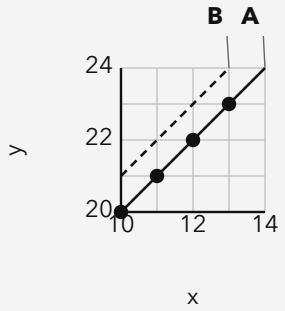
NAME _____ DATE _____

THE BIG IDEA

A line fits a scatter plot well when it follows the overall pattern and stays close to the points. To compare lines, add the vertical gaps from each point to each line. The line with the smaller total is closer by this measure.

WORKED EXAMPLE

Which line fits the plotted points better, A or B?



1. At x = 10, the point is on A and 1 unit below B.
2. The same is true for each remaining point.
3. A has a total vertical gap of 0; B has a total of 4.

Answer: A

PRACTICE 4 problems

1 Data: (0, 2), (1, 4), (2, 6). A: y = 2x + 2. B: y = 2x + 3. Which line fits better?

ANSWER _____

2 Data: (0, 7), (1, 6), (2, 5). A: y = 7 - x. B: y = 8 - x. Which line fits better? Is the pattern rising or falling?

ANSWER _____

3 Data: (0, 1), (1, 4), (2, 5). A: y = 2x + 1. B: y = 2x + 2. Which line fits better? Give its total vertical gap.

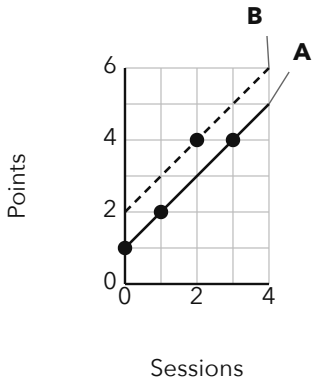
ANSWER _____

4 Data: (0, 4), (1, 5), (2, 8). A: y = 2x + 3. B: y = 2x + 4. Which line fits better? Give its total vertical gap.

ANSWER _____

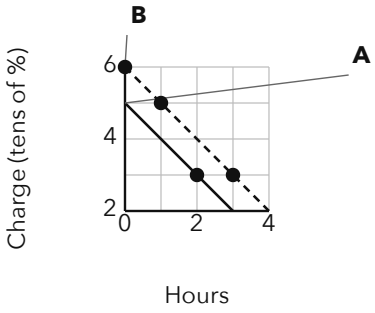
APPLY IT Show your work

1 A gaming club plots practice sessions and points earned. Which line fits the data better? Give its total vertical gap.



ANSWER _____

2 A phone's battery is tracked during a trip. The vertical axis shows charge in tens of percent. Which line fits better? Give its total vertical gap.



ANSWER _____

CHALLENGE One step up

Data: (0, 2), (1, 4), (2, 4), (3, 6). A: $y = x + 2$. B: $y = x + 3$. Compare their total vertical gaps. Can this measure pick a better fit? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Line Fit Lab

GRADE 8 · 8.DS.B.3

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Data: (0, 2), (1, 4), (2, 6). A: y = 2x + 2. B: y = 2x + 3. Which line fits better?	**A**
2	Data: (0, 7), (1, 6), (2, 5). A: y = 7 - x. B: y = 8 - x. Which line fits better? Is the pattern rising or falling?	**A; falling**
3	Data: (0, 1), (1, 4), (2, 5). A: y = 2x + 1. B: y = 2x + 2. Which line fits better? Give its total vertical gap.	**A; total vertical gap 1**
4	Data: (0, 4), (1, 5), (2, 8). A: y = 2x + 3. B: y = 2x + 4. Which line fits better? Give its total vertical gap.	**B; total vertical gap 1**

PART 2 · APPLY IT

1. **A; total vertical gap 1** The gaps to A are 0, 0, 1, and 0. The gaps to B total 3.
2. **B; total vertical gap 1** The gaps to B are 0, 0, 1, and 0. The gaps to A total 3.

CHALLENGE

Both lines have a total vertical gap of 2, so this measure does not pick a better fit.

Vertical gaps are absolute differences between a point's y-value and the line's y-value at the same x. Accept equivalent explanations for the challenge tie.