LESSON MAKER PRO

Find the Trend

Fit lines to scatter plots and make predictions.

HIGH SCHOOL · FA.S.43

FA.S.43 "For scatter plots that suggest a linear association, informally fit a straight line and predict the equation for the line of best fit. (8.SP.2)"

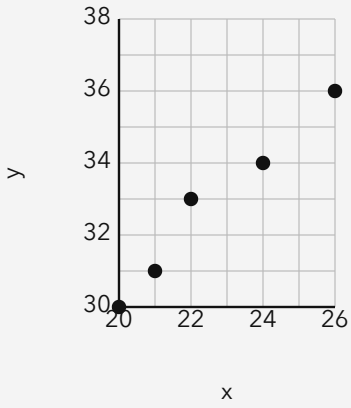
NAME _____ DATE _____

FIT A LINE

Choose a line that runs through the middle of the points, with points on both sides when possible. Use two points on your line to estimate its slope, then write an equation in the form y = mx + b.

WORKED EXAMPLE

Estimate an equation for a line that fits the scatter plot.



1. Choose (20, 30) and (26, 36) on a line through the points.
2. Slope: (36 - 30)/(26 - 20) = 1.
3. Use (20, 30): 30 = 1(20) + b, so b = 10.

Answer: One reasonable equation is y = x + 10.

PRACTICE 4 problems

1 Fit a line to (0, 1), (1, 3), (2, 6), (3, 7), (4, 9). Write its equation.

ANSWER _____

2 Fit a line to (0, 8), (1, 7), (2, 5), (3, 5), (4, 4). Write its equation.

ANSWER _____

3 Fit a line to (0, 3), (1, 4), (2, 6), (3, 6), (4, 7). Write its equation.

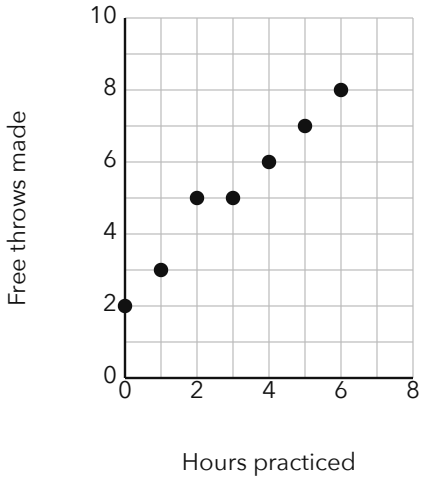
ANSWER _____

4 Fit a line to (0, 9), (1, 7), (2, 6), (3, 3), (4, 1). Write its equation.

ANSWER _____

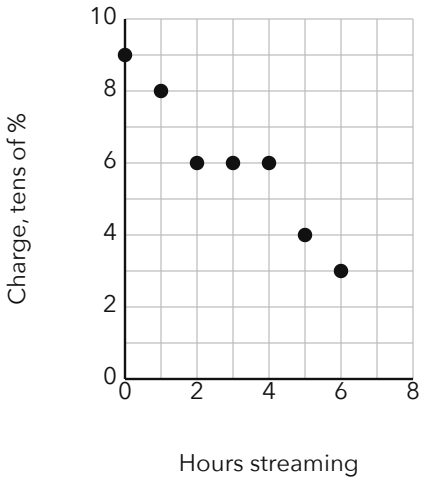
APPLY IT Show your work

1 The plot shows hours of basketball practice and free throws made out of 10. Fit a line. How many free throws does it predict after 7 hours?



ANSWER _____

2 The plot shows hours spent streaming and phone battery charge in tens of percent. Fit a line. Predict the charge after 7 hours.



ANSWER _____

CHALLENGE One step up

For (0, 2), (2, 3), (4, 4), (6, 6), (8, 6), explain why y = x + 2 is too steep. Give a better equation and predict y when x = 10.

WORK SPACE AND ANSWER

ANSWER KEY

Find the Trend

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Fit a line to (0, 1), (1, 3), (2, 6), (3, 7), (4, 9). Write its equation.	**y = 2x + 1**
2	Fit a line to (0, 8), (1, 7), (2, 5), (3, 5), (4, 4). Write its equation.	**y = -x + 8**
3	Fit a line to (0, 3), (1, 4), (2, 6), (3, 6), (4, 7). Write its equation.	**y = x + 3**
4	Fit a line to (0, 9), (1, 7), (2, 6), (3, 3), (4, 1). Write its equation.	**y = -2x + 9**

PART 2 · APPLY IT

1. **One reasonable equation is y = x + 2; it predicts 9 free throws.** A line through (0, 2) and (6, 8) fits the trend. At x = 7, y = 7 + 2 = 9.
2. **One reasonable equation is y = -x + 9; it predicts 20% charge.** A line through (0, 9) and (6, 3) fits the trend. At x = 7, y = 2 tens of percent, or 20%.

CHALLENGE

From x = 0 to x = 8, y rises about 4, not 8, so y = x + 2 is too steep. A better equation is y = 1/2x + 2, which predicts y = 7 when x = 10.

Line fits are estimates. Accept other equations and predictions that follow the overall trend closely.