LESSON MAKER PRO

Spot the Trend

Read patterns and make predictions from data.

HIGH SCHOOL · S.ID.6a

S.ID.6a "Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. Use a function to describe data trends to solve problems in the context of the data..."

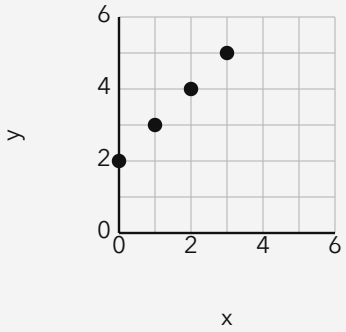
NAME _____ DATE _____

FROM PLOT TO PREDICTION

On a scatter plot, points that rise or fall by a steady amount suggest a linear model. Find the change in y for each increase of 1 in x, then use a plotted point to write a rule and predict another value. Points that multiply by the same factor over equal x-intervals suggest an exponential model.

WORKED EXAMPLE

Use the plotted points to write a linear rule. Predict y when x = 4.



1. Each time x rises by 1, y rises by 1.
2. At x = 0, y = 2, so the rule is y = x + 2.
3. When x = 4, y = 4 + 2 = 6.

Answer: y = x + 2; y = 6

PRACTICE 4 problems

1 Points (10, 15), (20, 25), and (30, 35) follow a linear trend. Predict y when x = 40.

ANSWER _____

2 Points (10, 80), (20, 60), and (30, 40) follow a linear trend. Write a rule for y.

ANSWER _____

3 A data trend follows y = 3x + 12. Predict y when x = 15.

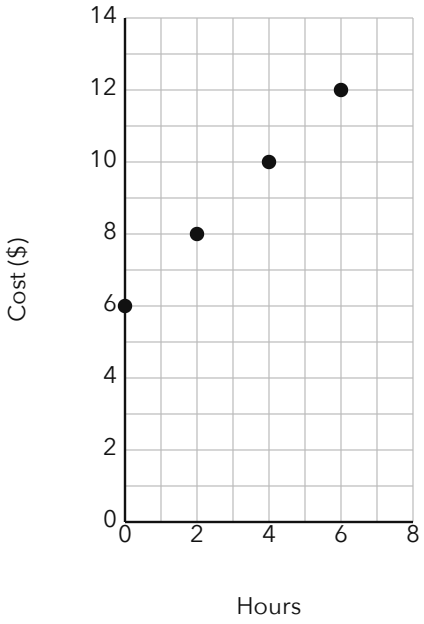
ANSWER _____

4 A data trend follows $y = 5x^2$. Predict y when x = 6.

ANSWER _____

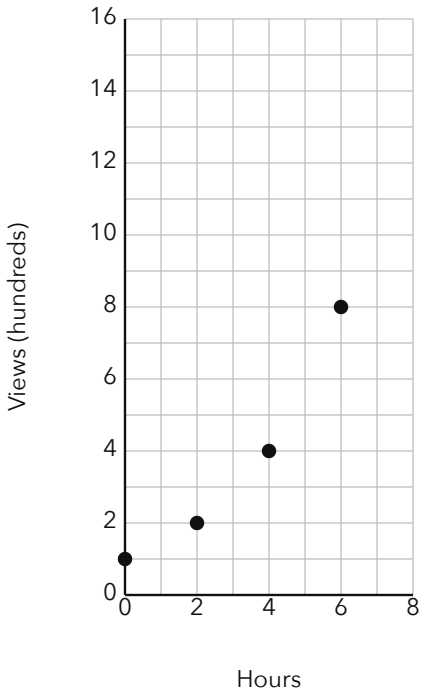
APPLY IT Show your work

1 A bike rental has a starting fee plus an hourly charge. Use the plot to write a cost rule and find the cost for 8 hours.



ANSWER _____

2 A clip's views follow the plotted trend. If it continues, how many views will the clip have after 8 hours?



ANSWER _____

CHALLENGE One step up

A club has 50 subscribers at week 0, 100 at week 1, and 200 at week 2. Is a linear or exponential model a better fit? Predict the number at week 4 and explain.

WORK SPACE AND ANSWER

ANSWER KEY

Spot the Trend

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Points (10, 15), (20, 25), and (30, 35) follow a linear trend. Predict y when x = 40.	**45**
2	Points (10, 80), (20, 60), and (30, 40) follow a linear trend. Write a rule for y.	**y = -2x + 100**
3	A data trend follows y = 3x + 12. Predict y when x = 15.	**57**
4	A data trend follows $y = 5x^2$. Predict y when x = 6.	**180**

PART 2 · APPLY IT

1. **y = x + 6; $14** The cost rises $2 every 2 hours, so the hourly charge is $1. Add the $6 starting fee to get y = x + 6, then substitute x = 8.
2. **1,600 views** The number of views doubles every 2 hours. At 8 hours, the model predicts 16 hundreds, or 1,600 views.

CHALLENGE

Exponential; the number doubles each week, reaching 400 at week 3 and 800 at week 4.

Accept equivalent linear rules that use a different variable for cost. Challenge explanations should identify doubling over equal time intervals.