LESSON MAKER PRO

Spot the Trend

Construct scatter plots and describe how two quantities change together.

HIGH SCHOOL · AII-S.ID.6

AII-S.ID.6 "Represent bivariate data on a scatter plot, and describe how the variables' values are related."

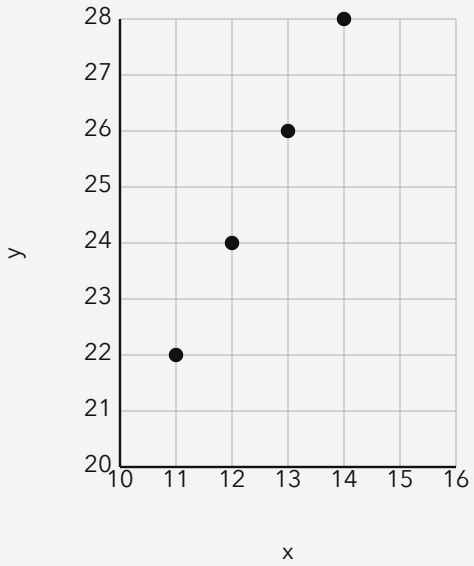
NAME _____ DATE _____

DESCRIBE THE PATTERN

In a scatter plot, look at what happens to y as x increases. A positive trend rises, a negative trend falls, and no association has no clear overall direction.

WORKED EXAMPLE

Use the scatter plot. Describe the relationship between x and y.



1. As x increases by 1, y increases by 2.
2. The points make an upward straight pattern.
3. This is a positive linear relationship.

Answer: Positive linear relationship. For each increase of 1 in x, y increases by 2.

PRACTICE 4 problems

1 The points are (2, 1), (3, 3), (4, 5), and (5, 7). Describe the relationship.

ANSWER _____

2 The points are (0, 9), (2, 7), (4, 5), and (6, 3). Describe the relationship.

ANSWER _____

3 The points are (1, 8), (2, 4), (3, 8), and (4, 4). Is there a positive trend, negative trend, or no clear trend?

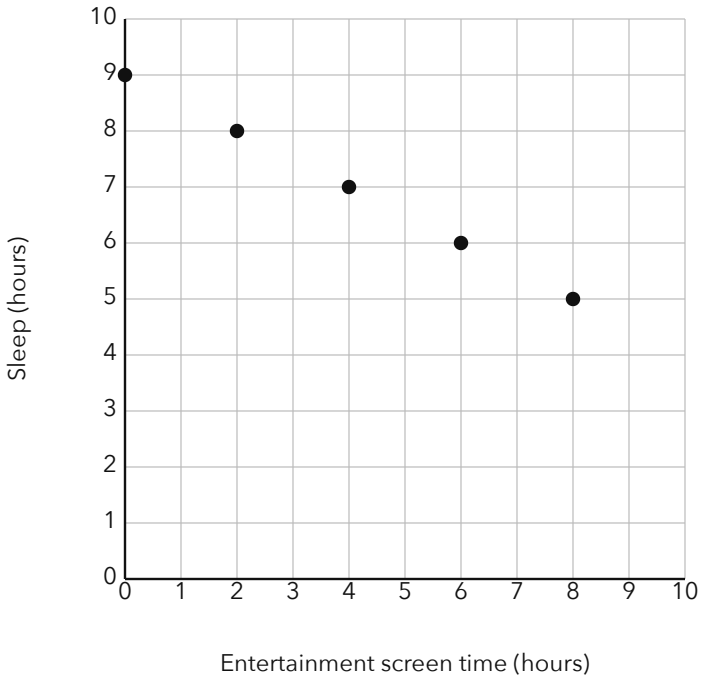
ANSWER _____

4 The points are (0, 2), (1, 4), (2, 6), (3, 1), and (4, 10). Identify the outlier and describe the trend of the other points.

ANSWER _____

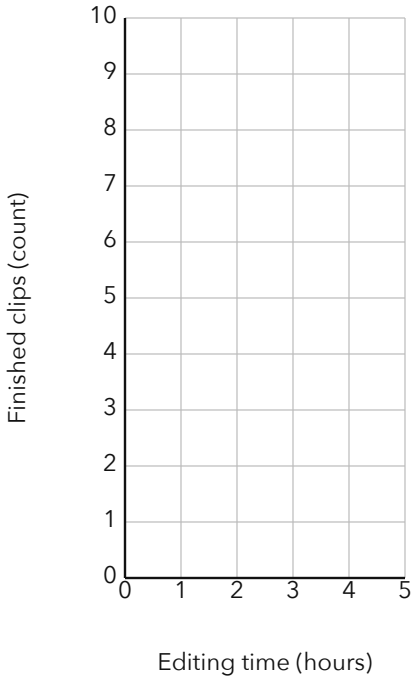
APPLY IT Show your work

1 This scatter plot shows entertainment screen time, x, and sleep, y, in hours for several students. Describe the relationship. Predict y when x = 10.



ANSWER _____

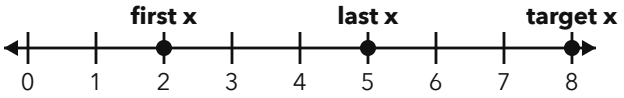
2 A student records video-editing hours, x, and finished clips, y: (1,2),(2,4),(3,6),(4,8). Plot these four observed pairs on the blank grid. Label the axes with quantities and units, then describe the relationship and predict the number of clips after 5 hours.



ANSWER _____

CHALLENGE One step up

The data pairs are (2, 10), (3, 9), (4, 8), and (5, 7). The number line shows the observed x-values and a target x-value. Is predicting y when x = 8 interpolation or extrapolation? Explain, then give the prediction.



WORK SPACE AND ANSWER

ANSWER KEY # Spot the Trend

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	The points are (2, 1), (3, 3), (4, 5), and (5, 7). Describe the relationship.	**Positive linear relationship. y increases by 2 when x increases by 1.**
2	The points are (0, 9), (2, 7), (4, 5), and (6, 3). Describe the relationship.	**Negative linear relationship. y decreases by 1 when x increases by 1.**
3	The points are (1, 8), (2, 4), (3, 8), and (4, 4). Is there a positive trend, negative trend, or no clear trend?	**No clear positive or negative trend.**
4	The points are (0, 2), (1, 4), (2, 6), (3, 1), and (4, 10). Identify the outlier and describe the trend of the other points.	**Outlier: (3, 1). The other points have a positive linear trend.**

PART 2 · APPLY IT

1. **Negative linear relationship. When x = 10, y = 4 hours.** The plotted points fall as x increases. The pattern decreases 1 hour of sleep for every 2 more hours of screen time.
2. **Plot (1,2),(2,4),(3,6),(4,8) as four separate dots. Positive linear relationship. Predicted 10 clips after 5 hours.** The number of clips increases by 2 for each additional editing hour. Continue the pattern to x = 5.

CHALLENGE

Extrapolation, because 8 is outside the observed x-values from 2 to 5. The pattern decreases by 1 each time x increases by 1, so y = 4 when x = 8.

Accept equivalent wording for positive, negative, or no clear trend. For predictions, accept a correct continuation of the stated linear pattern. Apply 2: check the four observed points, equal scale spacing and both quantity/unit labels. Keep the predicted (5,10) distinct from measured observations; it need not be plotted. Do not connect scatter-plot dots.

Apply 2: observed data, positive linear relationship; (5,10) is a prediction

