

## **14.2 Trend Lines and Predictions**

### 8.SP.3

Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting slope and y-intercept

### 8.SP.1

Construct and interpret plots for bivariate measurement data to investigate patterns of association between two quantities. Describe the pattern such as clustering, outliers, positive or negative association, linear association, and nonlinear association

### 8.SP.2

Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line

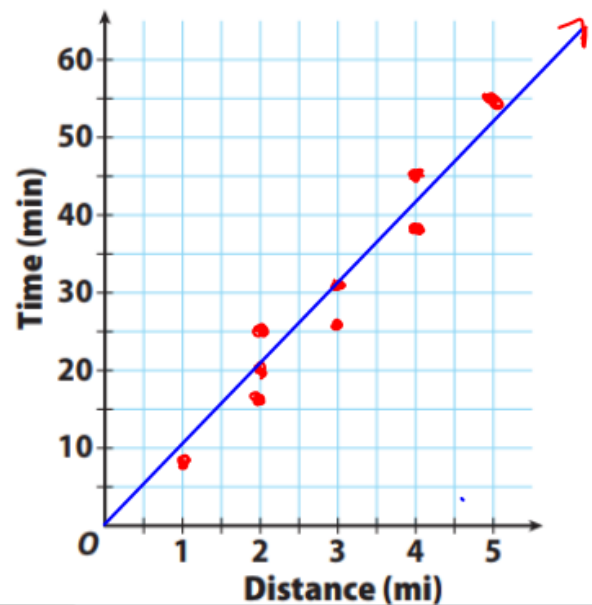
## **Vocabulary**

- trend line - a straight line that comes closest to all of the points on a scatter plot

# EXPLORE ACTIVITY 1

Joyce is training for a 10K race. For some of her training runs, she records the distance she ran and how many minutes she ran.

- A** Make a scatter plot of Joyce's running data.



Distance (mi)	Time (min)
4	38
2	25
1	7
2	16
3	26
5	55
2	20
4	45
3	31

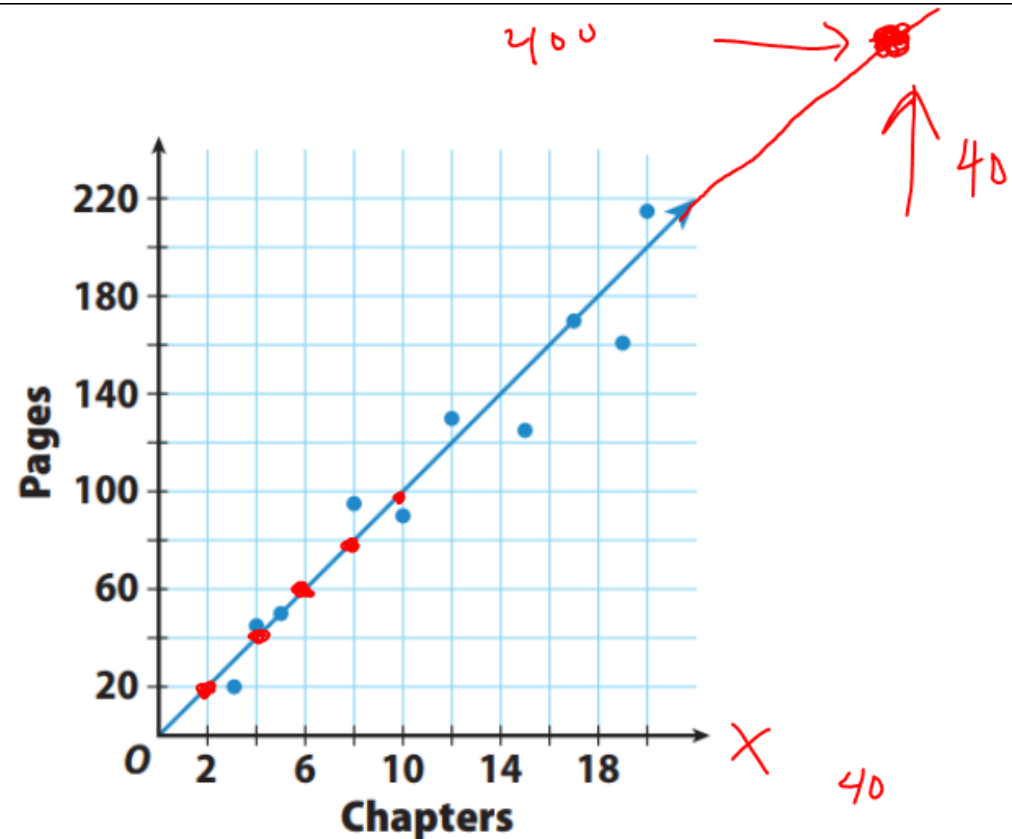
**EXAMPLE 1**

The scatter plot and trend line show the relationship between the number of chapters and the total number of pages for several books. Write an equation for the trend line.

$$m = \frac{\text{Rise}}{\text{Run}} = \frac{20}{2} = 10$$

$$y = mx + b$$

$$y = 10x$$



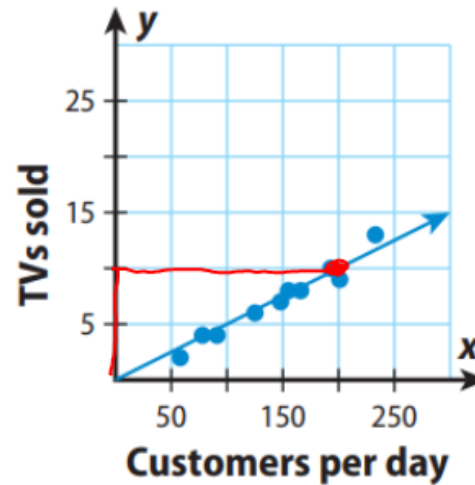
40 chapters?  
400 pages

## ADDITIONAL EXAMPLE 1

The scatter plot and trend line show the relationship between the number of customers that enter an electronics store in a day and the number of TVs sold. Write an equation for the trend line.

$$M = \frac{\text{Rise}}{\text{Run}} = \frac{10}{200} = \frac{1}{20}$$

$$y = \frac{1}{20}x$$



## YOUR TURN

6. The scatter plot and trend line show the relationship between the number of rainy days in a month and the number of umbrellas sold each month. Write an equation for the trend line.

$$m = \frac{\text{Rise}}{\text{Run}} = \frac{9}{10}$$

$$y = \frac{9}{10}x$$

