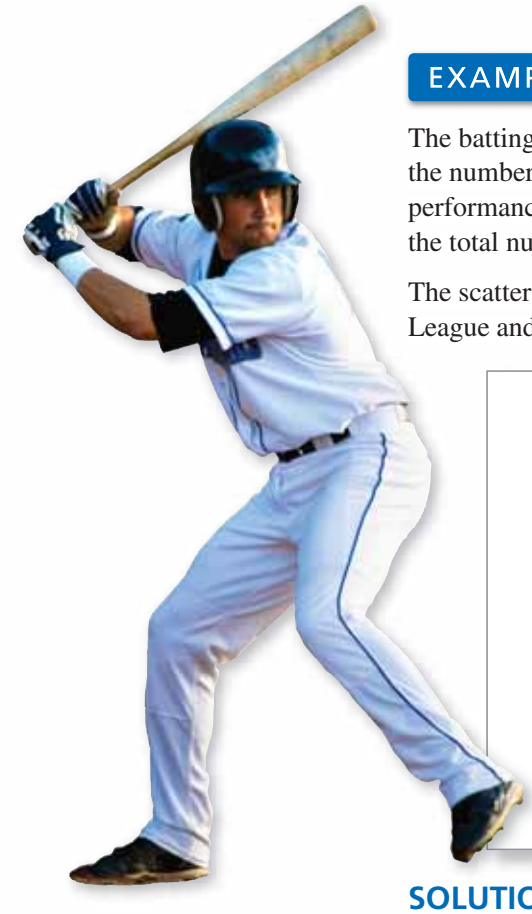
10.3 Professional Sports

- Use mathematics to analyze baseball statistics.
- Use mathematics to analyze football statistics.
- Use mathematics to analyze statistics in other professional sports.

Baseball Statistics

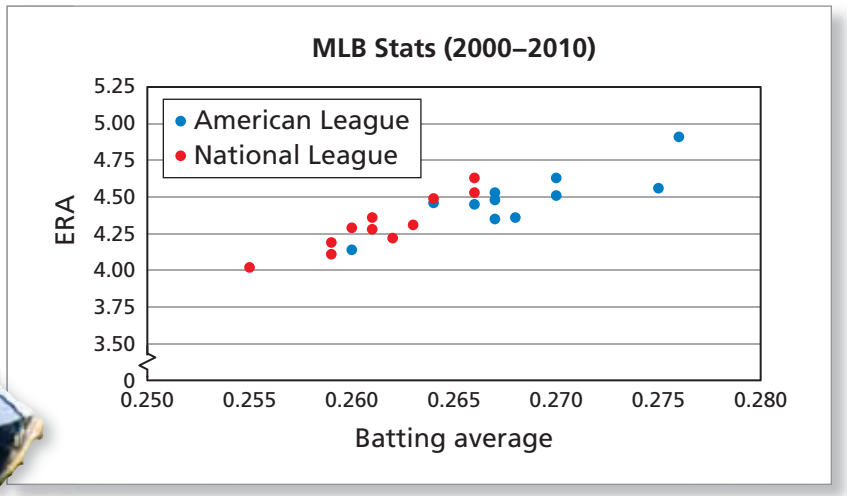
The statistics of baseball seem to have attracted more interest than the statistics of any other professional sport. There are dozens of different types of statistics, including batting, pitching, fielding, and baserunning statistics.



EXAMPLE 1 Analyzing Batting Statistics

The batting average of a *player* or of a team is the ratio of the number of hits to the number of "at bats." The earned run average (ERA) is a measure of a *pitcher's* performance obtained by dividing the total number of earned runs allowed by the total number of innings pitched, and then multiplying by nine.

The scatter plot compares the batting averages and the ERAs of the American League and the National League from 2000 through 2010. What can you conclude?



SOLUTION

The American League had better (higher) batting averages. The National League had better (lower) earned run averages.

Checkpoint

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It is possible for 1 player to have a higher batting average than another player 2 years in a row, but to have a lower batting average when the 2 years are combined. Here is an example. How can you explain this?

	1995		1996		Combined	
Derek Jeter	12/48	.250	183/582	.314	195/630	.310
David Justice	104/411	.253	45/140	.321	149/551	.270