

11 TAKS PREPARATION



TAKS Obj. 9
TEKS 8.13.B

DRAWING VALID CONCLUSIONS FROM DATA

In order to draw valid conclusions from data, you must examine the data mathematically. The following methods can help you analyze data.

- **Graphing the data** You can use a graph, such as a histogram or a scatter plot, to reveal patterns and trends in the data.
- **Comparing data values** You can describe an increase or decrease in a quantity by finding the difference or percent change between two data values.

Both of these methods can be used to determine whether statements about the data are accurate or inaccurate.

EXAMPLE

The table shows the number of U.S. citizens 7 years or older (in millions) who played softball for various years from 1995 through 2003.

Year	1995	1997	1999	2001	2003
Number	17.6	16.3	14.7	13.2	11.8

- Describe the pattern in the numbers of U.S. citizens who played softball.
- Estimate the number of U.S. citizens who played softball in 2000.
- Evaluate this statement: “The number of U.S. citizens who were softball players decreased over 40% during the eight years following 1995.”

Solution

- Make a scatter plot of the data.
 - ▶ The number of people who played softball decreased during each two-year period since 1995. The decrease was approximately linear.
- Because the data show a linear trend, you can estimate that the number of softball players in 2000 is about halfway between the number of players in 1999 (14.7 million) and the number of players in 2001 (13.2 million).
 - ▶ The number of U.S. citizens who played softball in 2000 was about $(14.7 \text{ million} + 13.2 \text{ million}) \div 2 \approx 14.0 \text{ million}$.
- From 1995 to 2003, the number of softball players decreased by $17.6 \text{ million} - 11.8 \text{ million} = 5.8 \text{ million}$. The percent decrease from 1995 to 2003 was $5.8 \text{ million} \div 17.6 \text{ million} \approx 0.33 = 33\%$.
 - ▶ The statement is inaccurate.

