

4-6 Regression and Median-Fit Lines

6. **RETAIL** The table gives the sales of jeans at a clothing chain since 2008. Let x be the number of years since 2008.

Year	2008	2009	2010	2011	2012	2013	2014
Sales (Millions of Dollars)	684	76	109	154	176	212	265

- Write an equation of the regression line.
 - Graph and analyze the residual plot.
8. **CAMPING** A campground kept a record of the number of campsites rented over the week of July 4 for several years. Let x be the number of years since 2005.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sites Rented	34	45	42	53	58	47	57	65	59

- Find an equation for the regression line.
 - Predict the number of campsites that will be rented in 2017.
 - Predict the number of campsites that will be rented in 2025.
10. **ORGANIZE IDEAS** The prices of the eight top-selling brands of jeans at Jeanie's Jeans are given in the table below.

Sales Rank	1	2	3	4	5	6	7	8
Price (\$)	43	44	50	61	64	135	108	78

- Find the equation for the regression line.
 - According to the equation, what would be the price of a pair of the 12th best-selling brand?
 - Is this a reasonable prediction? Explain.
14. **ART** A count was kept on the number of paintings sold at auction each year. Let x be the number of years since 1990.

Years	1990	1995	2000	2005	2010	2015
Paintings Sold	8	5	25	21	9	22

- Find the equation for the linear regression line.
 - How many paintings were sold in 2001?
 - Is the linear regression equation an accurate model of the data? Explain why or why not.
16. **ANALYZE RELATIONSHIPS** For a class project, the scores that 10 randomly selected students earned on the first 8 tests of the school year are given. Explain how to find a line of best fit. Could it be used to predict the scores of other students? Explain your reasoning.

19. Atma used his graphing calculator to find a best-fit equation for some data. In the equation $w = 0.32r + 4.8$, w represents the weight of a cantaloupe in pounds and r represents its radius in inches. Predict the weight of a cantaloupe with a radius of 5 inches.
- 0.625 pound
 - 1.6 pounds
 - 4.8 pounds
 - 6.4 pounds
20. The table shows the canceled check fee for a bank from 2013 to 2016.

Canceled check fee, years since 2013				
Years	0	1	2	3
Fee (\$)	5	10	10	15

Which of the following best predicts the fee in the year 2020?

- \$15
- \$20
- \$26.50
- \$30