

NAME: _____

UNIT 4 • DESCRIBING DATA

Lesson 2: Working with Two Categorical and Quantitative Variables

Problem-Based Task 4.2.3: Estimating Salaries

Marcy surveys 10 people who work at a software company. She asks each person how many years they have worked, and what their estimated salary was last year. Her results are in the table below.

Years of experience	Salary in dollars (\$)
1	52,810
2	61,615
3	80,831
4	77,201
5	136,566
6	100,707
8	135,460
10	208,889
11	228,831
13	209,726

Marcy believes that the salaries can be estimated using the equation $y = 14,000x + 34,000$. Is her line a good fit for the data? Marcy estimates that her salary should be \$130,000. Approximately how many years of work experience does Marcy have?

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Coaching

- a. Create a scatter plot of the data.
- b. Plot the line of best fit on the scatter plot.
- c. Does it appear that the line is a good fit for the data?
- d. Calculate the estimated salary for each x -value.
- e. Find the residual for each x -value, or the difference between the observed and estimated salaries for each value of x .
- f. Create a residual plot.
- g. Is the line a good fit for the data?
- h. If Marcy estimates her salary should be \$130,000, how can the years she has worked be approximated using the equation?