

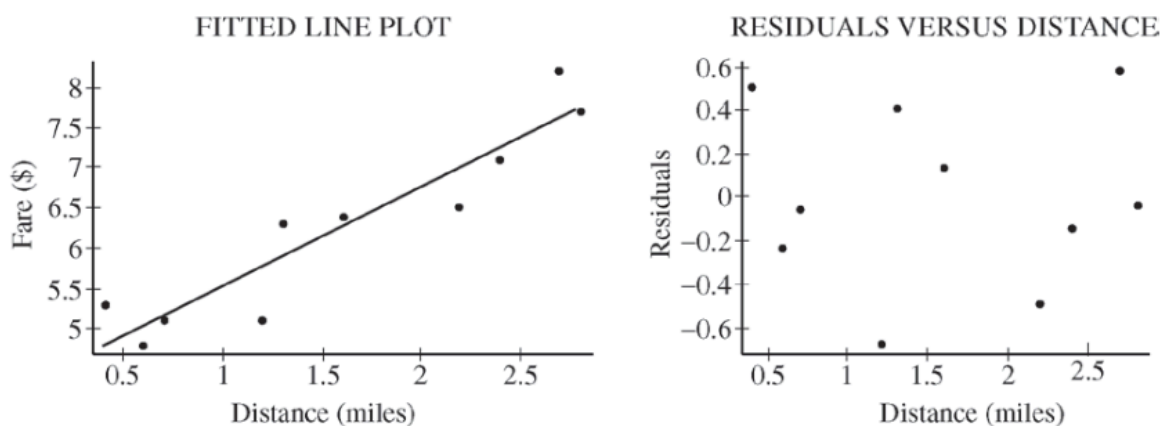
AP STATISTICS FRQ

A taxicab company in a large city charges passengers a flat fee to enter a cab plus an additional fee per mile. There is also a charge for time spent stopped in traffic. The company wants to develop a new method for determining fares based on mileage and a flat fee only, not on time spent stopped in traffic. A random sample of 10 recent cab fares was selected, and the distance, in miles, and the fare, in dollars, were recorded. A regression model was fit to the data, and the output, scatterplot, and residual plot are given below.

Parameter	Estimate	Std. Err.	T-Stat	P-Value
Intercept	4.296	0.298	14.400	< 0.0001
Mileage	1.229	0.166	7.418	< 0.0001

$$R\text{-sq} = 0.87306005$$

$$s = 0.44294646$$



- (a) State the equation of the least squares regression line for these data. Define any variables used in the equation.
- (b) A 95 percent confidence interval for the intercept of the least squares regression line is (3.61, 4.98). Construct and interpret a 95 percent confidence interval for the slope of the least squares regression line. Assume the conditions for inference are met.

- (c) The company wants to know if charging a flat fee of \$3.00 and a per-mile charge of \$1.50 will maintain its current revenue. Based on the information in part (b), is a flat fee of \$3.00 a reasonable value? Explain.