AP Review HW#17 Solution

Solution

Part (a):

The regression line equation is $\hat{y} = 4.296 + 1.229x$, where $\hat{y} =$ the predicted taxi fare (in dollars) and $x =$ the distance traveled (in miles).

Part (b):

Step 1: Identifies the appropriate confidence interval by name or formula and checks appropriate conditions.

The stem of the problem states to assume that conditions for inference are met.

The confidence interval for the slope, β, the rate per mile charged by the taxi cab company is $b \pm t^*_{n-2}(\text{standard error of } b)$.

Step 2: Correct Mechanics

The 95% confidence interval is

$$b \pm t^*_{n-2}(\text{standard error of } b) = 1.229 \pm 2.306(0.1657) = 1.229 \pm 0.382 = (0.85, 1.61)$$

Step 3: Interpretation in context

At the 95% confidence level, an interval of plausible values for the true rate per mile charged by the taxi cab company is from \$0.85 to \$1.61.

Part (c):

The flat fee of \$3.00 is lower than any of the plausible values from the 95% confidence interval for the intercept (\$3.61 to \$4.98) which was based on the taxi company's original method of calculating fares. Thus, \$3.00 appears too low to maintain current revenue.