

3.3 Nonlinear Data

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The screenshot shows a statistics quiz interface. At the top, there's a navigation bar with a bell icon, a dropdown menu showing 'Statistics AP-Thompson-Year-12462 (66479)', and a user profile for 'Michael Brodskiy'. Below the navigation bar, there's a breadcrumb trail: 'Statistics AP-Thompson-Year-12462 (66479) > Activities and Due Dates > Statistics > nonlinear data'. The main content area is divided into two columns. The left column shows a list of 16 questions, with the first six visible. Each question has a status bar indicating the percentage correct (100% for questions 1-4, 92% for question 5, and 100% for question 6) and the number of attempts (1 of 4 for questions 1-4, 2 of 4 for question 5, and 1 of 4 for question 6). The right column shows the details for 'Question 16 of 16'. It includes an 'Assignment Score' of 99.7%, a 'Resources' button, a 'Show Log' button, a 'Solution' button, and a 'Next Question' button. The question text is: 'A scatterplot of y versus x shows a positive, nonlinear association. Two different transformations are attempted to try to linearize the association: using the logarithm of the y-values and using the square root of the y-values. Two least-squares regression lines are calculated, one that uses x to predict log(y) and the other that uses x to predict \sqrt{y} . Which of the following would be the best reason to prefer the least-squares regression line that uses x to predict log(y)?'. The options are: 'The distribution of residuals is more Normal.', 'The residual plot has more random scatter.', 'The slope is greater.', and 'The value of r^2 is smaller.'. The first option is selected. At the bottom of the question area, there's a green bar with a checkmark and the word 'Solved'.

16 of 16 Questions

Assignment Score: 99.7%

Resources Show Log Solution Next Question

My Attempt

Question 16 of 16

A scatterplot of y versus x shows a positive, nonlinear association. Two different transformations are attempted to try to linearize the association: using the logarithm of the y-values and using the square root of the y-values. Two least-squares regression lines are calculated, one that uses x to predict $\log(y)$ and the other that uses x to predict \sqrt{y} .

Which of the following would be the best reason to prefer the least-squares regression line that uses x to predict $\log(y)$?

- ☐ The distribution of residuals is more Normal.
- ☒ The residual plot has more random scatter.
- ☐ The slope is greater.
- ☐ The value of r^2 is smaller.

Solved