

Classroom Voting Questions: Elementary Statistics

Simple Linear Regression

1. What is the most common rationale for significance testing of simple linear regression?
 - (a) to test if the intercept is significantly large
 - (b) to test if the slope of the regression line is positive
 - (c) to test if the slope of the regression line is negative
 - (d) to test if the slope is different from zero
 - (e) to appease an editor or reviewer when publishing the results
2. Which of the following does *not* result in more accurate estimates for β_1 ?
 - (a) An increase in the sample size
 - (b) An increase in the coefficient of determination
 - (c) An increase in the variance of the observed x -values
 - (d) An increase in the variance of the observed y -values
3. You have performed a linear regression with age as the predictor variable and hours per week spent online as the response variable. You have also constructed a 95% confidence interval for the mean number of hours spent online for 21-year olds. The confidence interval is (18, 28). Which of the following could be a 95% prediction interval for the number of hours spent online for a randomly selected 21-year old?
 - (a) (20, 26)
 - (b) (20, 30)
 - (c) (14, 32)
 - (d) all of the above
 - (e) two of the above
4. You have performed a linear regression with age as the predictor variable and hours per week spent online as the response variable. You have also constructed a 95% confidence interval for the mean number of hours spent online for 21-year olds. The confidence interval is (18, 28). Which of the following could be a 90% prediction interval for the number of hours spent online for a randomly selected 21-year old?

- (a) (20, 26)
- (b) (18, 28)
- (c) (16, 30)
- (d) all of the above
- (e) two of the above