

name: Solution

1 (10 points). Each of the following statements contain an error. Describe each error and explain why the statement is wrong.

- (a) If the residuals are all negative, this implies that there is a negative relationship between the response variable and the explanatory variable.
- (b) A strong negative relationship does not imply that there is an association between the explanatory variable and the response variable.
- (c) A lurking variable is always something that can be measured.

(a) There is no relationship between the residuals $\hat{\epsilon}_i$ the direction of the relationship between variables

(b) A negative relationship simply means that the response variable moves in the opposite direction as the explanatory variable. The fact that it's strong means there's a strong association

(c) A lurking variable may not even be known $\hat{\epsilon}_i$ what isn't known can't be measured, intentionally at least.