Warm-up Exercises

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Question 1

In the simple linear regression model $Y_i = \beta_0 + \beta_1 X_1 + u_i$,

A the intercept is typically small and unimportant.

B $\beta_0 + \beta_1 X_1$ represents the population regression function.

C the absolute value of the slope is typically between 0 and 1.

D $\beta_0 + \beta_1 X_1$ represents the sample regression function.

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Answer: B

Question 2

The OLS estimator is derived by

A connecting the Y_i corresponding to the lowest X_i observation with the Y_i corresponding to the highest X_i observation.

B making sure that the standard error of the regression equals the standard error of the slope estimator.

C minimizing the sum of absolute residuals.

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Answer: D

Question 3

The following are all least squares assumptions with the exception of:

A The conditional distribution of u_i given X_i has a mean of zero.

B The explanatory variable in regression model is normally distributed.

C $(X_i, Y_i), i = 1, \ldots, n$ are independently and identically distributed.

D Large outliers are unlikely.

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