Multiple Regression

1.

A multiple regression is called "multiple" because it has several explanatory variables.

True / False | 1.00

○ True
○ False

2.

A multiple regression model has the form: $\hat{y} = 5.25 + 2x_1 + 6x_2$. As x_2 increases by one unit, holding x_1 constant, then the value of y will increase by:

Multiple Choice | 1.00

○
7.25 units

○
6 units on average

○
2 units

○
None of these choices

3.

For the multiple regression model: $\hat{y} = 75 + 25x_1 - 15x_2 + 10x_3$, if x_2 were to increase by 5, holding x_1 and x_3 constant, the value of y will:

Multiple Choice | 1.00

○ increase by 5.

○ increase by 75.

○ decrease on average by 5.

○ decrease on average by 75.

4.

A multiple regression model has the form $\hat{y} = 8 + 3x_1 + 5x_2 - 4x_3$. As x_3 increases by one unit, with x_1 and x_2 held constant, the y on average is expected to:

Multiple Choice | 1.00

○ increase by 1 unit.

○ increase by 12 units.

○ decrease by 4 units.

○ decrease by 16 units.

5.

A multiple regression model has:

Multiple Choice | 1.00

○

only one independent variable.

○

only two independent variables.

○

more than one dependent variable.

○

more than one independent variable.

6.

In a multiple regression model, the probability distribution of the error variable e is assumed to be:In a multiple regression model, the probability distribution of the error variable e is assumed to be:

Multiple Choice | 1.00

○ normal
○

non-normal.

○

positively skewed.

○

negatively skewed.

7.

In reference to the equation $Å = 1.86 - 0.51x_1 + 0.60x_2$, the value 0.60 is the average change in y per unit change in x_2, regardless of the value of x_1.

True / False | 1.00

○ True
○ False

8.

In multiple regression analysis, the adjusted coefficient of determination is adjusted for the number of independent variables and the sample size.

True / False | 1.00

○ True
○ False

9.

In reference to the equation $\hat{y} = -0.80 + 0.12x_1 + 0.08x_2$, the value 0.12 is the average change in y per unit change in x_1, when x_2 is held constant.

True / False | 1.00

○ True
○ False

10.

In reference to the equation $\hat{y} = -0.80 + 12x_1 + 0.80x_2$, the value -0.80 is the y-intercept.

True / False | 1.00

○ True
○ False

11.

A multiple regression model is assessed to be good if the error sum of squares SSE and the standard error of estimate s_e are both small, the coefficient of determination R^2 is close to 1, and the value of the test statistic F is large.

True / False | 1.00

○ True
○ False

12.

A multiple regression equation has a coefficient of determination of 0.81. Then, the percentage of the variation in y that is explained by the regression equation is 90%.

True / False | 1.00

○ True
○ False

13.

In a multiple regression analysis, if the model provides a poor fit, this indicates that:

Multiple Choice | 1.00

○
the coefficient of determination will be close to zero.

○
the standard error of estimate will be large.

○
the sum of squares for error will be large.

○
All of these choices are true.

14.

A multiple regression equation includes 5 independent variables, and the coefficient of determination is 0.81. The percentage of the variation in y that is explained by the regression equation is:

Multiple Choice | 1.00

○
81%

○
90%

○
86%

○
about 16%

15.

In reference to the equation $\hat{y} = -0.80 + 0.12x_1 + 0.08x_2$, the value -0.80 is the y-intercept.

True / False | 1.00

○ True
○ False