

## Quiz 1

Which of the following output statistics hints you that a model does not present multicollinearity.

$R^2 < 0.8$

Which of the following tests helps confirm the presence of multicollinearity of a model?  
**VIF**

Select all the options that can be used as a solution for a problem of multicollinearity.

Apply logarithms ?

Eliminating the variables that cause the multicollinearity ?

Perform a substitution

Doing nothing

Adding the time factor

A VIF test is performed. What is the conclusion that can be drawn from the following result?

Variable	x1	x2	x3
VIF	25.997	1.3683	13.559

There is multicollinearity most-likely caused by the variables x1 and x3

Which of the following is the best definition of multicollinearity?

The presence of linear dependence between two or more independent variables of a model

Can one suspect multicollinearity?

Variable	Coefficient	Standard Error	T-Stat	P-Value
Intercept	50.2333	12.833	3.914384789	1.66E-04
x_1	-2.3571	3.335	-0.70677661	0.481366
x_2	91.882	44.014	2.087563048	0.039405
R-Squared:	0.921			
F-stat:	1395	p-value:	3.0E-73	

Yes, because the R-square is greater than 0.8 and there is at least one non-significant coefficient

Which of the following is not a test used for detecting and confirming multicollinearity?

**BP test**

## Quiz 2: Heteroskedasticity

**Homoskedasticity is the OLS assumption that states that the variance of the residuals must be constant**

**What is the test-statistic used for a BP-test when trying to detect heteroskedasticity?**  
Chi-squared

**This is the result of a test to detect heteroskedasticity:**

**BP-Test**

**BP = 11.1111**

**df = 3**

**p-value = 0.0111**

**Conclusion:**

With 95% confidence, the residuals are homoscedastic, since p-value is less than 0.05 ?

With 95% confidence, the residuals are heteroscedastic, since p-value is less than 0.05

**From the following options, select the ones that mention possible solutions for the problem of heteroskedasticity:**

- White solution
- Increase sample size (if possible)
- Changing functional form

## Quiz 3: Normality

**The following is a result of a JB test:**

**X-squared = 2.3654**

**df = 2**

**p-value = 0.3064**

**Conclusion:**

With a 95% confidence, the residuals are normally distributed since p-value is greater than 0.05

**What's the name of the test that helps check the normality of the residuals?**  
JB test

## Quiz 4: General characteristics and significance of a model

**The following function is proposed for a multivariate regression:**

**$y = F(+x_1, -x_2, -x_3)$**

**Given this information, what is expected from the variable  $x_2$ ?**

An inverse relationship, that means that when it increases, the regressand will decrease

**Which of the following interpretations can be given from this model:  $y = 9.3 + 2.5x + u$**

Per each unit that the variable x increases, the variable y will increase 2.5 units

**Which of the following interpretations can be given from this model:  $y = 2.3 - 1.5\log(x) + u$**

Per each 1% that the variable x increases, the variable y will increase 1.5 units

**Which of the following interpretations can be given from this model:**

**$\log(y) = 9.2 + 2.5\log(x) + u$**

Per each 1% that the variable x increases, the variable y will increase 2.5%

**This is the output of the statistics of a model.**

VARIABLE	COEFFICIENT	STANDARD ERROR	T-STAT	P-VALUE
Intercept	50.2333	12.833	3.914384789	1.665E-04
x_1	-2.3571	3.335	-0.70677661	0.481366
x_2	91.882	44.014	2.087563048	0.039405
R-squared:	0.721			
F-stat:	1395	p-value:	3.0E-73	

**Select from the following list the conclusions you can draw from it (assume a 95% confidence level).**

- The model is statistically significant globally
- x\_1 is not statistically significant
- x\_2 is statistically significant
- The intercept is significant

**The following model is obtained from a regression:  $y=5.66-13.256x+0.256z+u$**

**What has to be the initial function proposed so that the model is economically significant?**

$y=F(-x,+z)$

**The following function is proposed for a multivariate regression:  $Y = F(+x_1,-x_2)$**

**Which of the following models is economically significant?**

$Y = 2 + 3x_1 - 5.2x_2 + u$