How can I quickly find the regression equation in Excel?

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The process of finding the regression equation in Excel can be expedited by utilizing the built-in functions and tools available in the software. By selecting the relevant data and using the appropriate functions such as "LINEST" or "FORECAST", users can quickly obtain the regression equation without having to manually calculate or manipulate the data. This allows for a more efficient and accurate method of obtaining the regression equation, saving time and effort for the user.

Quickly Find Regression Equation in Excel

You can use the LINEST function to quickly find a regression equation in Excel.

This function uses the following basic syntax:

LINEST(known_y's, known_x's)

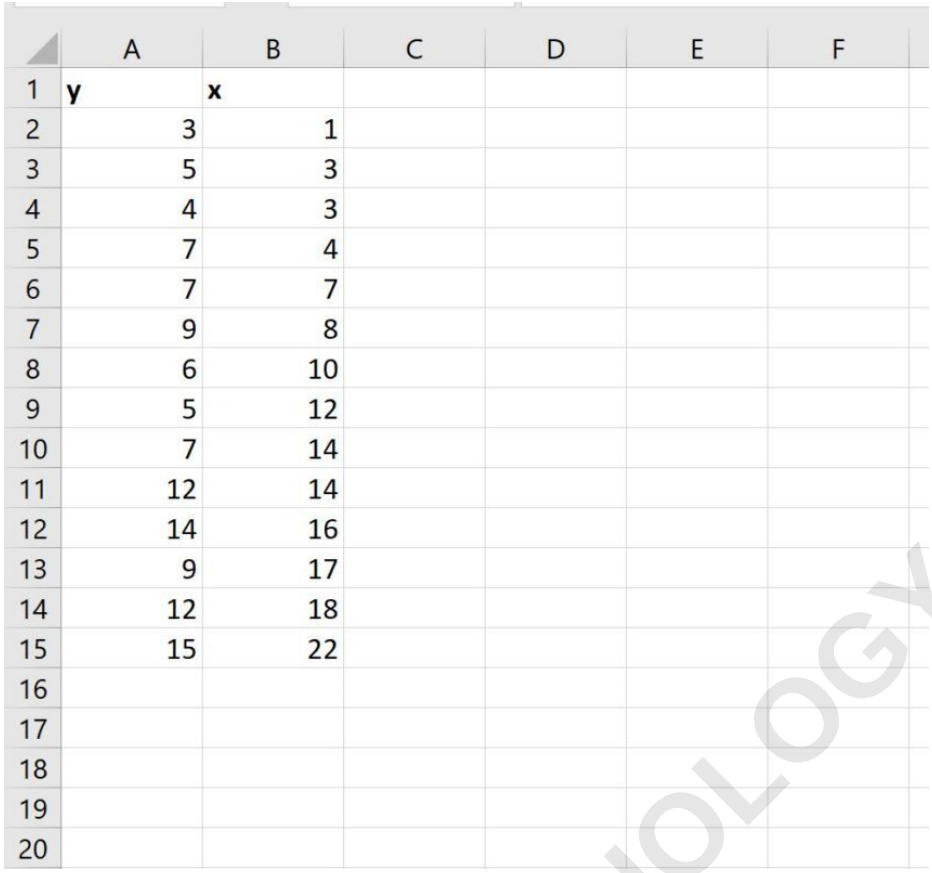
where:

known_y's: A column of values for the response variableknown_x's: One or more columns of values for the predictor variables

The following examples show how to use this function to find a regression equation for a and a .

Example 1: Find Equation for Simple Linear Regression

Suppose we have the following dataset that contains one predictor variable (x) and one response variable (y):

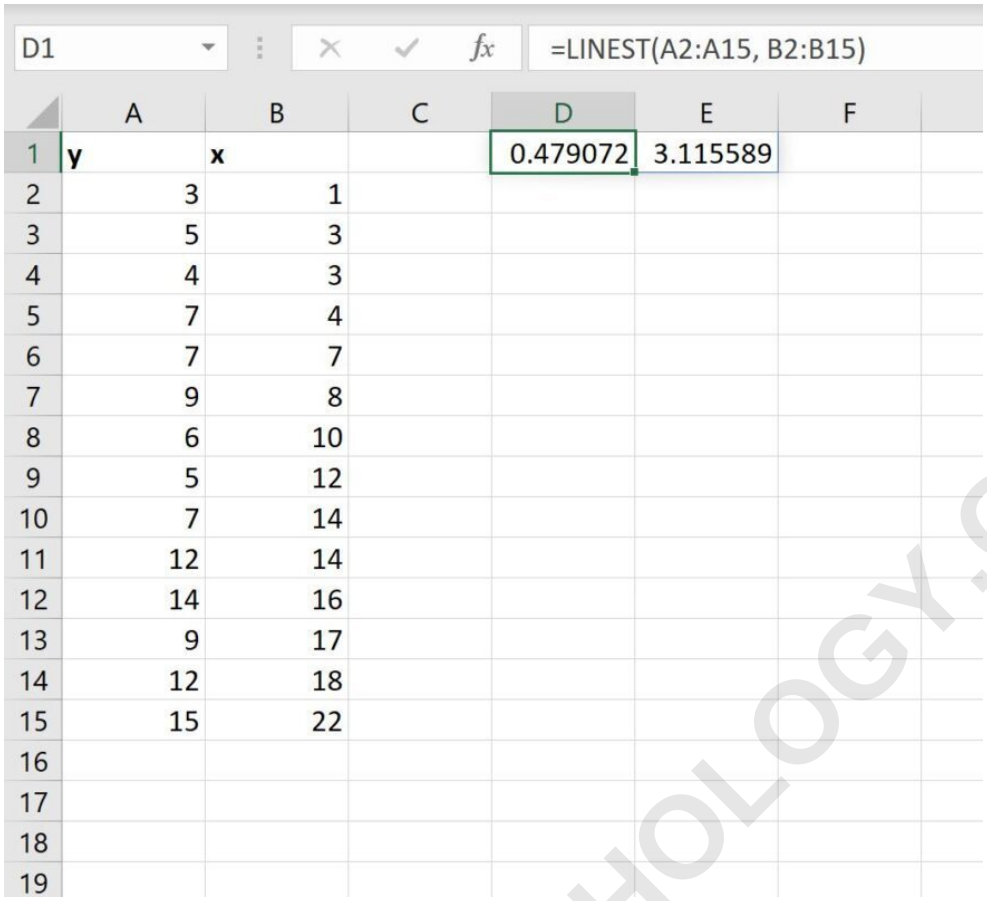


	A	B	C	D	E	F
1	y	x				
2	3	1				
3	5	3				
4	4	3				
5	7	4				
6	7	7				
7	9	8				
8	6	10				
9	5	12				
10	7	14				
11	12	14				
12	14	16				
13	9	17				
14	12	18				
15	15	22				
16						
17						
18						
19						
20						

We can type the following formula into cell D1 to calculate the simple linear regression equation for this dataset:

=LINEST(A2:A15, B2:B15)

Once we press ENTER, the coefficients for the simple linear regression model will be shown:



	A	B	C	D	E	F
1	y	x		0.479072	3.115589	
2	3	1				
3	5	3				
4	4	3				
5	7	4				
6	7	7				
7	9	8				
8	6	10				
9	5	12				
10	7	14				
11	12	14				
12	14	16				
13	9	17				
14	12	18				
15	15	22				
16						
17						
18						
19						

Here's how to interpret the output:

The coefficient for the intercept is 3.115589The coefficient for the slope is 0.479072

Using these values, we can write the equation for this simple regression model:

y = 3.115589 + 0.478072(x)

Example 2: Find Equation for Multiple Linear Regression

Suppose we have the following dataset that contains two predictor variables (x1 and x2) and one response variable (y):

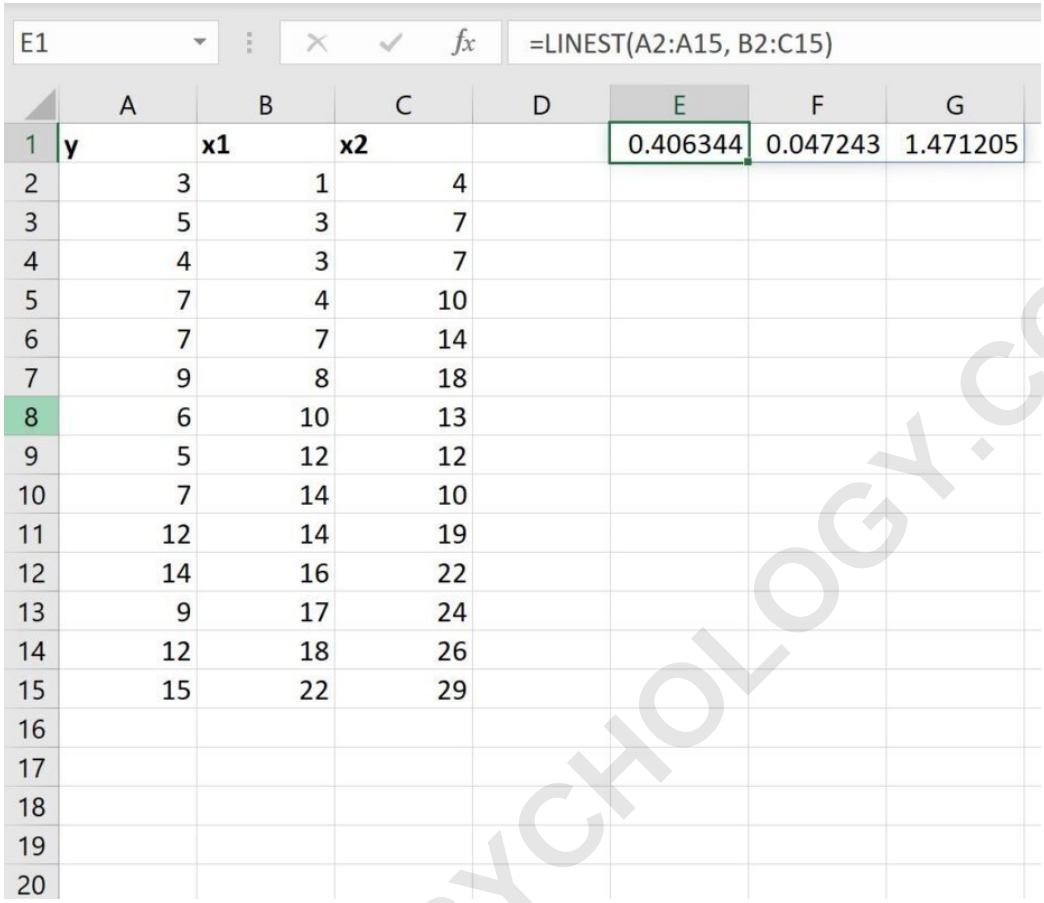
	A	B	C	D	E	F
1	**y**	**x1**	**x2**			
2	3	1	4			
3	5	3	7			
4	4	3	7			
5	7	4	10			
6	7	7	14			
7	9	8	18			
8	6	10	13			
9	5	12	12			
10	7	14	10			
11	12	14	19			
12	14	16	22			
13	9	17	24			
14	12	18	26			
15	15	22	29			
16						
17						
18						
19						
20						

We can type the following formula into cell E1 to calculate the multiple linear regression equation for this dataset:

=LINEST(A2:A15, B2:C15)

Once we press ENTER, the coefficients for the multiple

linear regression model will be shown:



	A	B	C	D	E	F	G
1	y	x1	x2		0.406344	0.047243	1.471205
2	3	1	4				
3	5	3	7				
4	4	3	7				
5	7	4	10				
6	7	7	14				
7	9	8	18				
8	6	10	13				
9	5	12	12				
10	7	14	10				
11	12	14	19				
12	14	16	22				
13	9	17	24				
14	12	18	26				
15	15	22	29				
16							
17							
18							
19							
20							

Here's how to interpret the output:

The coefficient for the intercept is 1.471205The coefficient for x1 is 0.047243The coefficient for x2 is 0.406344

Using these values, we can write the equation for this multiple regression model:

y = 1.471205 + 0.047243(x1) + 0.406344(x2)

Note: To find the p-values for the coefficients, the r-squared value of the model, and other metrics for a multiple linear regression model in Excel, you should use the Regression function from the Data Analysis ToolPak. This explains how to do so.

Additional Resources

The following tutorials provide additional information on regression in Excel: