

Using Minitab to run a Ryan-Joiner Test for Normality

1. Put your data values in one of the columns of the Minitab worksheet.
2. Add a variable name in the gray box just above the data values.
3. Click on "Stat" and then choose "Basic Statistics" and then "Normality Test ...".
4. Select the variable you want to test.
5. Under "Tests for Normality" click in the circle next to Ryan-Joiner.
6. Then click on "OK".

The test statistic is the number next to "RJ" in the box to the right of the graph. The P-value is given directly below the test statistic. If the P-value is given as ">0.100" or "<0.010", just write that down next to "P-value" in your summary of the test results.

Example (Navidi & Monk, *Elementary Statistics*, 2nd edition, #19 p.340): We will test for normality using a significance of 0.05. Since $1 - 0.05 = 0.95$, this is 95% confidence. The data are shown in the table below. The null hypothesis for this test is that the data is normally distributed. The alternative hypothesis is that the data is not normally distributed.

2.3	1.4	1.8	2.1	1.0	4.1	1.8	2.9	2.5	2.7
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Open Minitab and enter the data values under C1. The result should look like the following.

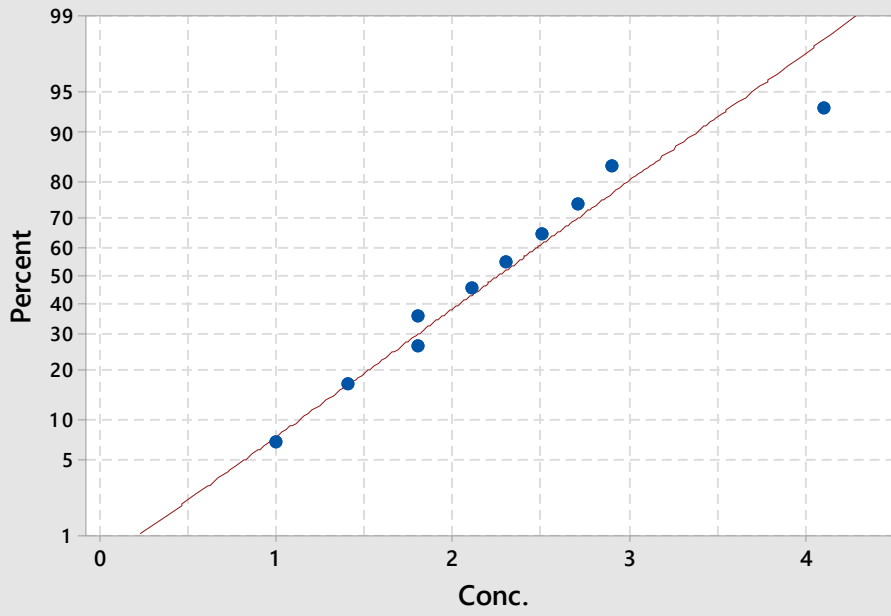
↓	C1	C2
	Conc.	
1	2.3	
2	1.4	
3	1.8	
4	2.1	
5	1.0	
6	4.1	
7	1.8	
8	2.9	
9	2.5	
10	2.7	

Now click on "Stat" and choose "Basic statistics" and "Normality test ...". Click in the box next to "Variable:", choose C1 from the box on the left and click on the "Select" button. Under "Tests for Normality" click in the circle next to "Ryan-Joiner". Then click on the "OK" button.

A graph like the one below will appear. All I am interested in are the last two values in the box on the right hand side of the graph. The number 0.976 next to "RJ" is the test statistic. Next to "P-value" is the expression "> 0.100" which means the P-value is greater than 0.100. That is all you need to know about the P-value.

Since the P-value is greater than 0.100, which in turn is greater than 0.05, the null hypothesis is not rejected. With 95% confidence, the evidence is not strong enough to say the data is not normally distributed.

Probability Plot of Conc. Normal



Mean	2.26
StDev	0.8708
N	10
RJ	0.976
P-Value	>0.100