

Question #68502, Math / Statistics and Probability

The following table shows the pesticide residue levels (ppb) in blood samples from four populations of human subjects. Use the Kruskal-Wallis test to test at the 0.01 level of significance the null hypothesis that there is no difference among the populations with respect to median level of pesticide residue.

Population

A	B	C	D
10	4	15	7
37	35	5	11
12	32	10	10
31	19	12	8
11	33	6	2
9	18	6	5
44	11	9	4
12	7	11	5
15	32	9	2
42	17	14	6
23	8	15	3

Answer.

Null hypothesis H_0 : All medians are equal.

Alternative hypothesis H_1 : At least one median is different.

Minitab output.

Kruskal-Wallis Test: ppb versus Population

Kruskal-Wallis Test on ppb

Population	N	Median	Ave Rank	Z
A	11	15.000	31.6	2.71
B	11	18.000	28.6	1.83
C	11	10.000	20.2	-0.68
D	11	5.000	9.5	-3.86
Overall	44		22.5	

H = 19.55 DF = 3 P = 0.000

H = 19.61 DF = 3 P = 0.000 (adjusted for ties)

Since the P-value ($p < 0.001$) is less than 0.01 we should reject the null hypothesis and conclude that there is a difference among the populations with respect to median level of pesticide residue.

Answer provided by www.AssignmentExpert.com