Answer on Question #85310 – Math – Statistics and Probability

Question

In Uthiru Girls an average 300 candidates do K.C.S.E every year. One out of the four streams claims that its candidates perform better in K.C.S.E than the rest of the candidates. If the proportion of the candidates who passed with at least 'C' out of the possible 'A' is 0.73 and the proportion of candidates from the stream consisting of 40 candidates is 0.78 (who passed with at least a 'C' grade). Is the stream's claim true?

Solution

One-sample proportion test.

Null hypothesis $H_0: p = 0.73$.

Alternative hypothesis $H_a: p > 0.73$.

Test statistic: $z = \dfrac{\hat{p} - p_0}{\sqrt{\dfrac{p_0(1-p_0)}{n}}} = \dfrac{0.78 - 0.73}{\sqrt{\dfrac{0.73(1-0.73)}{40}}} = 0.71$.

P-value: $p = 0.2389$.

Since the P-value is greater than 0.05 we fail to reject the null hypothesis.

There is no sufficient evidence to support the stream's claim.