Answer on Question #85604 – Math – Statistics and Probability

Question

A random sample of 100 recorded deaths in Kenya during the past year showed an average lifespan of 71.8 years with a standard deviation of 8.9 years. Does this seem to indicate that the average lifespan today is greater than 70 years at 5% level of significance?

Solution

One-sample t-test.

Null hypothesis H_0: $\mu = 70$.

Alternative hypothesis H_a: $\mu > 70$.

Test statistic: $t = \frac{\bar{x}-\mu}{s/\sqrt{n}} = \frac{71.8-70}{\frac{8.9}{\sqrt{100}}} = 2.02$.

Degrees of freedom: $df = n - 1 = 100 - 1 = 99$.

P-value: $p = 0.0220$.

Since the P-value is less than 0.05, we should reject the null hypothesis.

There is enough evidence that that the average lifespan today is greater than 70 years.