Answer on Question #30740 – Math – Statistics and Probability

A statistician wishes to test the claim that the standard deviation of the weights of firemen is less than 25 pounds. To do so, she selected a random sample of 20 firemen and found s = 23.2 pounds.

Assuming that the weights of firemen are normally distributed, if the statistician wanted to test her research hypothesis at the .05 level of significance, what is the critical value?

Place your answer, rounded to 3 decimal places, in the blank.

Solution

We should test the hypothesis about the standard deviation of the weights of firemen. We need chi-square test. Thus, the critical value is

$$\chi^2_{\alpha,n-1} = \chi^2_{0.05,19} = 30.144\,.$$