

A sports college keeps records of the times taken by students to run one lap of a running track. The population median time taken is 51.0 seconds. After a month of intensive training, a random sample of 22 new students run one lap of the track, giving times, in seconds, as follows.

51.3	52.0	53.4	49.2	49.3	51.1	52.2	47.2
53.0	48.5	49.4	50.3	50.8	51.6	49.1	52.3
51.8	52.4	47.9	48.9	50.6	51.9		

It is claimed that the intensive training has led to a decrease in the median time taken to run one lap of the track.

Carry out a Wilcoxon signed-rank test, at the 5% significance level, to test whether there is sufficient evidence to support the claim. [9]