Metal rods produced by a certain factory are claimed to have a median breaking strength of 200 tonnes. For a random sample of 9 rods, the breaking strengths, measured in tonnes, were as follows.

210 186 188 208 184 191 215 198 196

A scientist believes that the median breaking strength of metal rods produced by this factory is less than 200 tonnes.

(a) Use a Wilcoxon signed-rank test, at the 5% significance level, to test whether there is evidence to support the scientist's belief. [6]

(b) Give a reason why a Wilcoxon signed-rank test is preferable to a sign test, when both are valid. [1]