Mood's Median Test

- **Assumptions:**
  - Observations are independent.
  - Observations come from populations with continuous distribution functions.
- **Testing: Two distributions are the same.**
  - Compute the sample median, M, of the combined sample.
  - Count the number of observations above and below M in each sample separately.

	Sample A	Sample B
$\# < M$		
$\# > M$		

  - Compute the expected cell counts: E = (row total)(column total)/total number
  - Compute the value of the χ^2 statistic: $\chi^2 = \sum \frac{(O-E)^2}{E}$
  - Compare the value of the χ^2 statistic to the table value with df = (# rows - 1)(# columns - 1).
  - Reject the hypothesis of a common distribution function if the χ^2 statistic is too large (associated P-value is small).
  - If the alternative has a direction, one distribution higher than another. This must be supported by a comparison of the observed to expected counts.

Tukey's Quick (Pocket) Test

- **Assumptions:**
  - Observations are independent.
  - Observations come from populations with continuous distribution functions.
- **Testing: Two distributions are the same vs. one is shifted.**
  - Check to see if the samples are shifted. If the minimum value of sample A is smaller than the minimum value of sample B, then the maximum value of sample A must be smaller than the maximum value of sample B.
  - If the samples are shifted, count the number of values in sample A smaller than the minimum value of B and the number of values in sample B greater than the maximum value of A. The sum of these two counts is the value of the Tukey Quick (Pocket) Test statistic.
  - Compare the value of the Tukey Quick (Pocket) Test statistic to the table of critical values (given below).

Critical Value	6	7	10	13
2-sided α	0.100	0.050	0.010	0.001
1-sided α	0.050	0.025	0.005	0.0005

  - Reject, at significance level α, the hypothesis that the two distributions are the same if the value of the test statistic is greater than the tabulated critical value.
  - If the alternative has a direction, one distribution higher than another. This must be supported by the same direction of shift in the samples.