	Function	Parametric Test
Wilcoxon signed-ranks test (Section 13-3)	Test of differences between matched pairs	*t* test (Section 9-4)
Wilcoxon rank-sum test (Section 13-4)	Test for difference between two independent samples	*t* test or *z* test (Section 9-3)
Kruskal-Wallis test (Section 13-5)	Test that three or more independent populations have the same average	Analysis of variance (Section 12-2)
Rank correlation (Section 13-6)	Test for correlation between two variables	Linear correlation (Section 10-2)
Runs test (Section 13-7)	Test for randomness of sample data	No parametric test

Chapter Quick Quiz

1. Nonparametric Tests Which of the following terms is sometimes used instead of "nonparametric test": *normality test; abnormality test; distribution-free test; last testament; test of patience*?

2. Presidents Four of the nonparametric methods in this chapter use ranks of data. Find the ranks corresponding to these ages at inauguration of the first five presidents of the United States: 57, 61, 57, 57, 58.

3. Efficiency What does it mean when we say that the rank correlation test has an efficiency rating of 0.91 when compared to the parametric test for linear correlation?

4. Platelets Measures of blood platelet counts are obtained for random samples of females and males, and the results are listed below (based on Data Set 1 in Appendix B). Platelet counts for males and females can be compared by using the Wilcoxon rank-sum test for independent samples. Why is the Wilcoxon rank-sum test called a *distribution-free* test?

Female	317	224	248	309	335	278	312	338	290	236	310
Male	409	187	250	273	278	279	237	200	209	203	206

5. Runs Test Assume that we want to use the runs test to test the claim that the odd and even numbers occur randomly in the platelet counts for females listed in Exercise 4. Find the number of runs G.

6. Runs Test and the DJIA When applying the runs test for randomness above and below the median for the 10 annual high values of the Dow Jones Industrial Average, the test statistic is $G = 2$. What does that value tell us about the data?

7. Which Tests? Assume that the platelet counts in Exercise 4 are from 11 pairs of fraternal twins. Which method(s) of this chapter can be used to test the claim that for such pairs of twins, there is no difference in platelet counts?

8. Which Tests? Assume that the platelet counts in Exercise 4 are from 11 pairs of fraternal twins. Which method(s) of this chapter can be used to test the claim that for such pairs of twins, there is a relationship between the female platelet counts and the male platelet counts?

9. Which Tests? Four different judges each rank the quality of 20 different California wines. What method of this chapter can be used to test for agreement among the four judges?

10. Sign Test Identify three different applications of the sign test.