8. Positive signs: 172; negative signs: 439; ties: 0 (from challenges to referee calls in the most recent U.S. Open tennis tournament)

In Exercises 9–12, use the sign test for the data consisting of matched pairs.

9. Oscar Winners Listed below are ages of actresses and actors at the times that they won Oscars. These 10 matched pairs are the first 10 from Data Set 11 in Appendix B. The data are paired according to the years that they won. Use a 0.05 significance level to test the claim that there is no difference between the ages of best actresses and the ages of best actors at the time that the awards were presented.

Best Actresses	22	37	28	63	32	26	31	27	27	28
Best Actors	44	41	62	52	41	34	34	52	41	37

10. Oscar Winners Repeat Exercise 9 using all of the 82 pairs of ages in Data Set 11 from Appendix B. For that data set, there are 16 positive signs, 64 negative signs, and 2 ties.

11. Heights of Presidents Refer to Data Set 12 in Appendix B and use the heights of U.S. presidents and their main opponents in the presidential campaigns to test the claim that there is no difference. Use a 0.05 significance level.

12. Flight Data Repeat Example 2 using the following times for American Airlines Flight 19.

Taxi-out time (min)	15	12	19	18	21	20	13	15	43	18	17	19
Taxi-in time (min)	10	10	16	13	9	8	4	3	8	16	9	5

In Exercises 13–16, use the sign test for the claim involving nominal data.

13. Gender Selection The Genetics and IVF Institute conducted a clinical trial of its methods for gender selection. As of this writing, 239 of 291 babies born to parents using the YSORT method were boys. Use a 0.01 significance level to test the claim that the YSORT method has no effect.

14. Predicting Sex of Baby A study addressed the issue of whether women have the ability to predict the sex of their babies. Among 104 recruited subjects, 55% correctly guessed the sex of the baby (based on data from "Are Women Carrying 'Basketballs' Really Having Boys? Testing Pregnancy Folklore," by Perry, DiPietro, and Constigan, *Birth,* Vol. 26, No. 3). Use a 0.05 significance level to test the claim that women do not have the ability to predict the sex of their babies.

15. Touch Therapy At the age of 9, Emily Rosa tested professional touch therapists to see if they could sense her energy field. She flipped a coin to select either her right hand or her left hand, then she asked the therapists to identify the selected hand by placing their hand just under Emily's hand without seeing it and without touching it. Among 280 trials, the touch therapists were correct 123 times and wrong the other times (based on data in "A Close Look at Therapeutic Touch," *Journal of the American Medical Association,* Vol. 279, No. 13). Use a 0.01 significance level to test the claim that the touch therapists make their selections with a method equivalent to random guesses. Based on the results, does it appear that therapists are effective at identifying the correct hand?

16. Football Survey In a *USA Today* poll, people responded to this question "Are today's NFL (football) games too long?" Among the respondents with a definitive answer, 242 answered yes and 396 answered no. Use a 0.05 significance level to test the claim that respondents did not have a strong opinion one way or the other. How are the results affected by the