16. IQ Scores Most people have IQ scores between 70 and 130. For $32, you can purchase a computer program from Highiqpro.com that is claimed to increase your IQ score by 10 to 20 points. The program claims to be "the only proven IQ increasing software in the brain training market," but the author of your text could find no data supporting that claim, so let's suppose that these results were obtained: In a study of 12 subjects using the program, the average increase in IQ score is 3 IQ points. There is a 25% chance of getting such results if the program has no effect.

In Exercises 17–20, refer to the data in the table below. (The pulse rates are from one sample of randomly selected males and a different sample of randomly selected females listed in Data Set 1 in Appendix B.)

Pulse Rate (beats per minute)					
Male	60	64	60	72	64
Female	68	72	88	60	60

17. Context of the Data Refer to the table of pulse rates. Is there some meaningful way in which each male pulse rate is matched with the corresponding female pulse rate? If the male pulse rates and the female pulse rates are not matched, does it make sense to use the difference between any of the pulse rates that are in the same column?

18. Source of the Data The listed pulse rates were obtained for the Third National Health and Nutrition Examination Survey conducted by the U.S. Department of Health and Human Services, National Center for Health Statistics. Is the source of the data likely to be unbiased?

19. Conclusion Given the data in the table, what issue can be addressed by conducting a statistical analysis of the pulse rates?

20. Conclusion If we use the listed pulse rates with suitable methods of statistics, we conclude that when the 64.0 average (mean) of the pulse rates of the five males is compared to the 69.6 average (mean) of the pulse rates of the five females, there is a 36% chance that the difference can be explained by random results obtained from populations of males and females having the same average (mean) pulse rate. Does this prove that the populations of males and females have the same average (mean) pulse rate? Why or why not? Would better results be obtained with larger samples?

In Exercises 21–24, refer to the data in the table below. The IQ score and brain volume are listed for each of five different subjects. (The values are from Data Set 6 in Appendix B.)

IQ Score and Brain Volume					
Subject	1	2	3	4	5
IQ Score	87	127	101	94	97
Brain Volume (cm^3)	1035	1034	1173	1347	1029

21. Context of the Data Refer to the given table of measurements. Is there some meaningful way in which the IQ scores are matched with the corresponding brain volumes? If they are matched, does it make sense to use the difference between each IQ score and the brain volume that is in the same column? Why or why not?

22. Conclusion Given the context of the data in the table, what issue can be addressed by conducting a statistical analysis of the measurements?

23. Source of the Data The data in the table were obtained by members of departments at Harvard Medical School, Massachusetts General Hospital, Dartmouth College, Dartmouth Medical School, and the University of California at Davis. Funding for the study was provided by awards from the National Institutes of Health, which is an agency of the