

1. Using the data recorded in the file CartoonFull.sav, check the statistics of the following claims: a) The score on the OTIS scale is equal to 92. b) There is no differentiation in the OTIS scale with respect to color. c) There is no differentiation in the OTIS scale with respect to education. d) There is no differentiation in the OTIS scale with respect to the region.
2. In the file SAT scores.sav, the performance of some students in the examination in grammar and mathematics (verbal and math, respectively) is recorded. Check statistically the claim that students are equally good in both subjects.
3. In the file birthdeath.sav, the daily number of deaths in various cities in Greece is recorded. Some older research claims that the number of deaths is equal to 18. Confirm this claim.
4. a) Based on the data in the file HTWT12.sav, check if the average height and weight of the population are equal to 60 inches and 90 pounds, respectively. b) Based on the data in the file HTWT15.sav, check if the average weight and height of the population are 90 pounds and 65 inches, respectively.
5. Based on the data in the file HTWT.sav, examine if there is a difference in the average height between boys and girls.
6. In the file employs.sav, among other things, the number of sales, profits (Profit), in thousands of dollars, and the number of employees for two types of companies, Pharmaceutical (Pharmaceut) and Computer companies, which are classified as small, medium, and large based on their size. On average, a) are the profits of the two types of companies the same or different, b) are the sales of the three types of companies different depending on their size.
7. In a study on the effect of exercise on heart rates, 30 individuals were randomly selected. Each individual had to climb two different heights of stairs and run a distance at three different speeds. The results of the measurements were collected in the Heartrate.sav file. The variables in this file are: Speed: Stair climbing speed (0=low, 1=medium, 2=high) RestHR: Heart rate per minute at rest. FinalHR: Heart rate per minute after exercise. Examine if there are differences in average heart rates for the levels of the Speed factor.
8. The TeachingMethods.sav file contains the results of a study on the possible differences between two new teaching methods, as well as each of the new methods with the basic teaching method. The columns in this file are as follows: ID: The student's unique identifier. Group: The group to which each student belongs. Basal is the basic teaching method, while DRTA and Strat are the names of the two new teaching methods. Pre1: The student's score on the first test before being taught with any method. Pre2: The student's score on the second test before being taught with any method. Post1: The student's score on the first test after being taught using the methods. Post2: The student's score on the second test after being taught using the methods. AverPre is the average score for each student on the two pre-tests. AverPost is the average score for each student on the two post-tests. A) Examine if there are differences in the students' scores on the first and second tests before being taught using any method. B) Then, examine if the three teaching methods differ in terms of the average score on the two tests after instruction.