

Assignment

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For all "hypothesis testing" questions, make sure to provide explicit answers with your work shown for all 11 steps of a hypothesis test.

Diet and Weight Gain

Suppose that 1500 women followed a popular diet for a month. A random sample of 35 of these women was taken and the results for weight gained are shown below.

n	mean	sd	min	Q1	median	Q3	max
35	6.7	7.3	-2.8	0.7	4.2	10.5	17.2

Assuming that the standard deviation for all 1500 women was 7.1, test, at the 5% level, that the average weight gain per woman for the month was over 5 pounds.

Cactus Growth

A researcher is investigating the growth of a certain cactus under a variety of environmental conditions. He knows from previous research that the growth of this particular type of cactus is approximately normally distributed with a standard deviation of 1.40 cm. Under the current environmental conditions that he is investigating, however, he does not know the mean. He does hypothesize that it is no more than 4 cm. To test this hypothesis he used a preliminary sample of 10 randomly-selected cacti. He found the sample mean for these cacti to be 3.26 cm. Use this information to test his hypothesis with $\alpha=0.05$.