

Steps in Hypothesis Testing
Written Activity

1. For each conjecture, state the null and alternative hypothesis and determine the hypothesis tail test type to be used.

- a. The average age of a Filipino farmer is 57 years old. The researcher claims that the average age has changed.

H_0 : _____

H_1 : _____

Test type: _____

- b. The average number of tourists who stay for three days in Boracay is 14,100. The researcher claims that the average number of tourists have increased.

H_0 : _____

H_1 : _____

Test type: _____

2. Find the critical value (or values) for each set of conditions.

- a. $\alpha = 0.2$, left-tailed test, z-table

- b. $n = 16$, $\alpha = 0.01$, two-tailed test, t-table

For problems 3 and 4,

- a. State the hypothesis and identify the claim.
- b. Find the critical value(s) from the appropriate table.
- c. Compute the test value.
- d. Make the decision to reject or not reject the null hypothesis.
- e. Summarize the results.

3. The average production of peanuts in Virginia is 3000 pounds per acre. A new plant food has been developed and is tested on 60 individual plots of land. The mean yield with the new plant food is 3120 pounds of peanuts per acre, and the population standard deviation is 578 pounds. At $\alpha = 0.1$, can you conclude that the average production has increased? (10 points)

Source: *The Old Farmer's Almanac*.

4. The average family size was reported as 3.18. A random sample of families in a particular school district resulted in the following family sizes:

5	4	5	4	4	3
6	4	3	3	5	6
3	3	2	7	4	5
2	2	2	3	5	2

At $\alpha = 0.05$, does the average family size differ from the national average? (10 points)

Source: *New York Times Almanac*.