

Math 107 Paper 6 – Standardized Tests or Medical Tests

Due Thursday, March 20th at 8:00 AM

Data analysis using the normal distribution is done in all areas of study and industry, from determining how large an airplane seat should be to assigning standardized test scores, from testing blood to assessing a child's growth. For this paper, you will select an object of study that has a normal distribution and analyze that distribution.

Preparatory Exercises

1. Select a variable to study. This should be something that
 - Is normally distributed,
 - Is of interest to you, and
 - Has a mean and standard deviation that are publicly available.

Some ideas are: standardized tests that you might take, medical test results (esp. levels of “things” in the blood) that you might encounter personally or professionally, heights or weights of children or adults.

2. Find (on the internet) the mean and standard deviation of your variable.
3. Find the raw scores (x-values) that correspond to the following:
 - a. One standard deviation above and below the mean and two standard deviations above and below the mean
 - b. The 10th percentile, 25th percentile, 75th percentile, and 90th percentile

Write your paper

1. Introduction: Describe the variable that you are studying. Report the mean and standard deviation of the variable. Cite your source if appropriate. (4 points)
2. Body: For each of the calculations in exercise 3 above,
 - a. Report the result,
 - b. Describe how the calculations are done, and
 - c. Explain what they mean.(4 points each part, for a total of 12 points)
3. Conclusion: Summarize the main points of your paper. Provide the implications of your calculations, i.e., how can we use these values? For example, if you are testing for the hemoglobin levels in a person's blood, the lab will flag the person's lab report if the level is more than two standard deviations above or below the mean level. (4 points)