You are a psychologist employed in the human resources division of a large, multinational, corporation. The company employs approximately 87,435 people across the globe, and you have been given the unpleasant task of eliminating 5% of the employees in the company in response to a recent economic downturn. Aren’t you lucky?

You decide that you will use yearly performance evaluations in order to determine who to lay-off from the company. The company’s yearly performance evaluations assess several types of job performance (raw ability, creativity, commitment to the company, promptness with assignments, etc.). You have decided to use the total score of the evaluation because you feel that all of these qualities are essential to a well-functioning company. Total performance scores range from 1 to 100 with a mean of 50 and a standard deviation of 16. Although you might expect that individuals with low yearly performance scores have already been eliminated from the company owing to poor performance, we’ll assume that is not the case in this example. For this reason, assume that job performance scores are normally distributed around the mean.

1) What is the job performance score that you will use as your cut-off in determining who to lay-off?
2) How many people will you lay-off (to the nearest whole person)?

Assume that your company decides that the economic situation has improved somewhat and that they have decided to execute only modest lay-offs. Instead of a 5% reduction in total employment, your company has decided to eliminate only 1.25% of all employees. Once the news gets out, one of your fellow co-workers rushes to see you. He is concerned that his job is in jeopardy because of a lackluster performance rating last year.

3) Your fellow employee scored a 15 on last year’s evaluation. Outline the process of Null Hypothesis Significance Testing we used in class that would determine if your co-worker needs to find a new job.
4) What is the critical job performance score you’re using to decide who to lay-off this time?
5) How many people will you lay-off in total (to the nearest whole person)?

The CEO of your company decides that it is ridiculous that so many people score so badly on the company’s job performance evaluations. Fearing that the days of the company may be limited because of lackadaisical employees, he decides to institute a payment bonus for high-performing employees and to revoke yearly cost of living raises for the worst employees. He decides that the most high-performing 10% of the company’s employees will receive an extra 3% raise (to a total 6% raise) while the lowest performing 12% will have their yearly 3% raise revoked.

6) What is the lowest job performance score needed to get the 6% total raise?
7) What is the highest job performance score that will result in an employee losing his/her raise?
**Answers**

1) 23.68 (hint: it’s a one-tailed test)

2) 4,372

3) 
   a. Research Hypothesis: Your co-worker has scored significantly lower on his performance evaluation than the average employee in your company.
   b. We already have the norms/population values.
   c. Null Hypothesis: Your co-worker’s score is not significantly different from the average job performance score within the company.
   d. Construct the sampling distribution assuming the null hypothesis is true.
   e. Set the rejection region ($\alpha = .0125$, 1.25%, or a z-score of -2.24). One tailed.
   f. The test was already administered. Your co-worker scored at a z-score of -2.19.
   g. We fail to reject the null hypothesis. Your friend comes close to exceeding the critical z-score, but not quite. He lives to slack another year.

4) 14.16

5) 1,093

6) $z = 1.28$, job performance score = 70.48

7) $z = -1.175$, job performance score = 31.20