Chapter 6

1. A normal distribution of scores has a standard deviation of 10. Find the z-scores corresponding to each of the following values:
   a) A score of 60, where the mean score of the sample data values is 40.
   
b) A score that is 30 points below the mean.

   c) A score of 80, where the mean score of the sample data values is 30.

   d) A score of 20, where the mean score of the sample data values is 50.

2. IQ scores have a mean of 100 and a standard deviation of 16. Albert Einstein reportedly had an IQ of 160.
   a. What is the difference between Einsteins IQ and the mean?
   
b. How many standard deviations is that?
   
c. Convert Einstein’s IQ score to a z score.
   
d. If we consider “usual IQ scores to be those that convert z scores between -2 and 2, is Einstein’s IQ usual or unusual?

3. Women’s heights have a mean of 63.6 in. and a standard deviation of 2.5 inches. Find the z score corresponding to a woman with a height of 70 inches and determine whether the height is unusual. What percent of women have a height higher than 70 inches?
4. Three students take equivalent stress tests. Which is the highest relative score (meaning which has the largest z score value)?
   a. A score of 144 on a test with a mean of 128 and a standard deviation of 34.
   b. A score of 90 on a test with a mean of 86 and a standard deviation of 18.
   c. A score of 18 on a test with a mean of 15 and a standard deviation of 5.

5. As mentioned above, IQ scores are normally distributed with mean 100 and std deviation of 16.
   a. What percent of people have an IQ of less than 100?
   b. What percent of people have an IQ between 84 and 100?
   c. What percent of people have an IQ higher than 140?
   d. What percent of people have an IQ less than 80?