STATISTICS 211
Tutorial 2

1. A study of 85 private insurers found the average flood insurance premium was about $308 with a SD of $27. As a result of recent floods, rates are expected to rise.
   (a) If the rates go up by $40, what will the new values be?
      Average_____   SD_____

   (b) If the rates go up by 20%, what will the new values be?
      Average_____   SD_____

2. Find the average, median, r.m.s. and SD of the list of numbers.
      -6, -3, 1, 0, 5, 5

3. Hanes data from 1980 showed that the percentage of people who were left-handed decreased steadily with age, from 10% at 20 years to 4% at 70. "The data show that many people change from left-handed to right-handed as they get older." Is this quote true or false? Explain

4. The scores for a statistics test are as follows:
   87 76 99 77 90 94 88 85 66 89 79 98 50 97 83 88 82 58 18 69
   Find the

   (a) Find the
      a. Average, SD
      b. Median
      c. 25th and 75th percentiles
   (b) Are there any outliers?
   (c) If there are any outliers, remove them from the data and calculate average, median and SD again. Comment on the results

5. The following summary statistics were obtained from a data set with 1000 values.
   Mean=60.5 Median=64   Standard deviation =10.5   Q1=55.5   Q3=76.0

   Indicate approximately how many observations are in each of the intervals below. Explain your answer including a statement of any assumptions that you made and any observations about the validity of those assumptions.
   (a) The interval from 55.5 to 76.0
   (b) The interval from 39.5 to 81.5

6. A physical fitness association is including the mile run in its secondary-school fitness test. The time for this event for boys in secondary school is known to possess a normal distribution with a mean of 450 seconds with a standard deviation of 40 seconds. Between what two times do we expect most (approximately 95%) of the boys to run the mile? Find the times in seconds and minutes.

7. Every year around Halloween, many street signs are defaced. The average repair cost per sign is $68.00 and the standard deviation is $12.40. What percentage of defaced sign's repair cost will exceed $85.00?

8. Electrical connectors last on average 18.2 months with a standard deviation of 1.7 months. Assume that the life of the connectors is normally distributed. The manufacturer agrees to replace, free of charge, any connectors that fail within 17 months of installation. What percentage of the connectors can he expect to have replaced free of charge?

9. The scores on an I.Q test of university students follow a normal curve with an average of 115 and a S.D. of 12. What is the I.Q score of a student who is at the 40th percentile?

10. The time a recreational skier takes to go down a downhill course has a normal distribution with a mean of 12.3 minutes and a standard deviation of 24 seconds.
    (a) What percent of skiers will take between 12.1 and 12.6 minutes to complete a run on the course?
    (b) What is the maximum time (in minutes) the skier must have for the time to be classified "among the fastest 10% of his times"?

11. The (average, SD) of a series of repeated measurements is an estimate of the likely size of the chance error in a single measurement.

12. Do as many questions as possible from chapter 4, 5 and 6 for the next quiz.