1. On a statistic test the class mean was 63 and the standard deviation was 7 and for the biology test the mean was 23 and has a standard deviation of 3.9. Using z-scores determine on which test the student had a better score if the student received a 73 on the statistics test and a 26 on the biology test. Explain.

2.

3. A pharmaceutical company wants to test a new cholesterol drug. The average cholesterol of the target population is 200 mg and they have a standard deviation of 25 mg. The company wished to test a sample of people who fall between 1.5 and 3 z-scores above the mean. Using z-score into what range must a candidate's cholesterol level be in order for the candidate to be included in the study?

4. Determine whether the following statements are true or false.

   a. A mark of 75% always has a percentile rank of 75.
   b. A mark of 75% might have a percentile rank of 75.
   c. It is possible to have a mark of 95% and a percentile rank of 40.
   d. The higher the percentile rank, the better that score is compared to other scores.
   e. A percentile rank of 80, indicates that 80% of the scores are above that score.

5. The following is a set of 30 scores achieved by students on an exam:
                  18 23 33 38 38 38 42 51 55 56
                  57 63 65 66 68 68 68 68 76 80
                  81 82 85 89 92 93 93 95 97 100
   Determine the percentile rank for each of the following scores. Remember to round all percentiles up to the next whole number.
   a) 42
   b) 76

   Determine the score for each of the following percentile ranks. Remember that you need to find the corresponding number in the list.

   a) 50th
   b) 80th

6. A total of 700 individuals take a government employment exam. Carmela scores 618 out of 800 marks. There are 520 individuals who score less than 618 marks.
   a) Find Carmela's percent score
   b) Find Carmela's percentile rank.
   c) In order to get a job with the government an individual has be in the top 20% of people writing the exam. Will Carmela get a job? Explain.

7. The accompanying box-and-whisker plot represents the scores earned on a math test.

   a) What is the median score?

   (1) 75   (2) 70   (3) 85   (4) 77

   b) What score represents the first quartile?

   (1) 55   (2) 70   (3) 100 (4) 75

   c) What statement is *not* true about the box and whisker plot shown?

   (1) 75 represents the mean score   (3) 85 represents the 3rd quartile

   (2) 100 represents the maximum score   (4) 55 represents the minimum score

   d) A score of an 85 on the box-and-whisker plot shown refers to:

   (1) the third quartile   (3) the maximum score

   (2) the median   (4) the mean
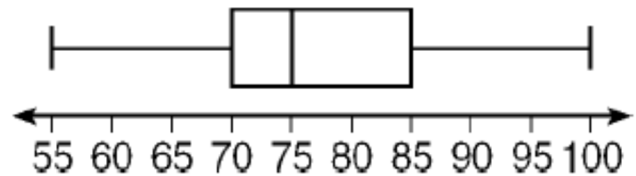
8. The accompanying box-and-whisker plots can be used to compare the annual incomes of three professions.

   Based on the box-and-whisker plots, which statement is true?

   (1) The median income for nuclear engineers is greater than the income of all musicians.

   (2) The median income for police officers and musicians is the same.

   (3) All nuclear engineers earn more than all police officers.

   (4) A musician will eventually earn more than a police officer.
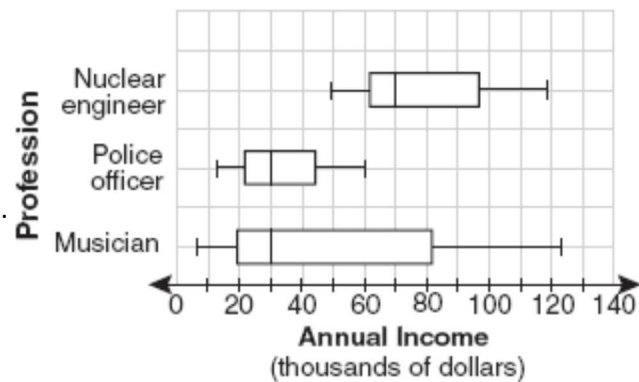
9. Find the median, Q1, Q3, interquartile range (IQR). Make a boxplot of the data. Is the data skewed? List any outliers.
   a.) 72, 32, 74, 66, 71, 45, 38, 49, 66, 69, 75, 34, 121

   Median: _____ Q1: _____ Q3: _____ IQR: _____ Outliers:

   b.) 23, 2, 5, 14, 25, 36, 27, 42, 12, 8, 7, 23, 29, 28, 11, 20, 31, 8, 36

   Median: _____ Q1: _____ Q3: _____ IQR: _____ Outliers: