There are 7 problems on this exam. Carefully read and follow all directions. In order to receive credit show all necessary work. No credit will be given for an answer I cannot find or cannot read. Round percentages to the nearest tenth and round all other answers to four decimal places. Each problem is worth 3 points unless indicated otherwise.

Use the following sample to work problems 1-3.

29  66  53  81  61  30  63  30  52  35
72  53  72  33  77  82  73  27  47  66

1. Organize this data in a stemplot using the tens digits as the stems.

2. Determine the following for this sample.

Mean ________________  Median ________________

Variance ________________  Standard Deviation ________________

First Quartile ________________  \( P_{80} \) ________________

Range ________________  Mode ________________

Midrange ________________  Percentile ranking for 52 ________________

\( z \)-score for 30 ________________  Data item with a \( z \)-score of \(-0.16\) ________________
3. Using the sample data on page 1, create the frequency histogram that corresponds to the stemplot in problem 1 on your calculator. Show me the histogram in an appropriate calculator window. (5 points)

4. Classify each of the following data items as Qualitative or Quantitative. (2 points each)
   
   (a) ________________  The time it takes you to complete this quiz
   
   (b) ________________  The cost of your statistics textbook
   
   (c) ________________  The rating you give a restaurant server: 0 for Poor, 1 for Good, 2 for Very Good, 3 for Excellent

5. Use the frequency histogram shown below to determine the following.

   ![Frequency Histogram]

   (a) In which class is the median located?

   (b) What percentage of the data is greater than 79?

   (c) Use the class midpoints and the frequency of each class to approximate the mean for this data set.
6. A data set has a mean of 77 and a standard deviation of 5. Determine each of the following.

(a) If the data is normally distributed, what percentage of the data is greater than 87?

(b) If the data is normally distributed, what percentage of the data is between 67 and 87?

(c) If the data is normally distributed, what percentage of the data is less than 67?

(d) If the data is normally distributed, what percentage of the data is has a z-score between $-1$ and 0?
7. Consider the experiment of selecting two colored balls at random from a group of colored balls consisting of 4 red, 2 blue, and 3 green balls and observing their colors. Assume the selection is done in order, one after the other, without replacement.

(a) Complete the following table listing each outcome in the sample space for this experiment and the frequency of occurrence for each. Note that all rows in the table may not have to be used. (6 points)

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<th>Outcome</th>
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(b) Using events A, B, and C defined below, determine the specified probabilities. Leave all answers as unreduced fractions.

Event $A$: Exactly one of the balls is green.

Event $B$: The two balls are the same color.

Event $C$: At least one of the balls is red.

P($A$) ____________ P($B$) ____________

P($C$) ____________ P($A$ and $B$) ____________

P($A$ or $B$) ____________ P($B$ and $C$) ____________

P($B$ or $C$) ____________ P($\overline{A}$) ____________

P($\overline{B}$) ____________