Math 268
Exam 1

Name: _____

Date: _____

This exam contains 4 pages (including this cover page) and 12 questions.
Total of points is 100.

NO GRAPHING CALCULATORS ALLOWED.

Grade Table (for professor use only)

Question	Points	Score
1	6	
2	6	
3	6	
4	6	
5	10	
6	10	
7	10	
8	10	
9	12	
10	8	
11	8	
12	8	
Total:	100	

1. (6 points) Identify the method used (i.e. Systematic, Stratified, Cluster, Random).

   (a) (3 points) A middle school P.E. coach selects three students from each grade to help choose the new gym colors.

   (b) (3 points) Every phone customer was asked to remain on the line to complete a satisfaction survey.

2. (6 points) Determine whether descriptive or inferential statistics were used.

   (a) (3 points) In 2010, a total of 68,905 people died from diabetes.

   (b) (3 points) Because of the current economy, 49% of 18- to 34-year-olds have taken a job to pay the bills.

3. (6 points) Determine whether the data are qualitative or quantitative

   (a) (3 points) Movie ticket prices

   (b) (3 points) Brands of televisions

4. (6 points) Determine the boundaries of each class.

   (a) (3 points) 5 - 9

   (b) (3 points) 1.5 - 2.4

5. (10 points) The ages of 20 dogs are shown. Construct a relative frequency distribution using 7 classes, and draw a relative frequency histogram.

$$
\begin{array}{ccccc}
5 & 8 & 7 & 6 & 3 \\
9 & 4 & 4 & 5 & 8 \\
7 & 4 & 7 & 5 & 7 \\
3 & 5 & 8 & 4 & 9 \\
\end{array}
$$

6. (10 points) The number of faculty for a variety of private colleges that offer only bachelor's degrees is listed below in a frequency distribution. Use the frequency distribution to constrict an ogive.

Class Boundaries	Frequency
76.5 - 111.5	2
111.5 - 146.5	7
146.5 - 181.5	6
181.5 - 216.5	3
216.5 - 251.5	4
251.5 - 286.5	3
286.5 - 321.5	2
321.5 - 356.5	0
356.5 - 391.5	1
Total	28

7. (10 points) A pie chart is to be constructed with the data of popularity of car colors shown below. Give the measurements of the angles corresponding to the given colors.

Car Color	Popularity
White	19%
Silver	10%
Black	16%
Red	13%
Gray	12%
Blue	12%
Other	18%

8. (10 points) The data show the maximum wind speeds for a sample of 40 states. Find the mean and modal class for the data.

Class Boundaries	Frequency
47.5 - 54.5	3
54.5 - 61.5	2
61.5 - 68.5	9
68.5 - 75.5	13
75.5 - 82.5	48
82.5 - 89.5	3
89.5 - 96.5	2

9. (12 points) A sample of 12 drivers shows the time that they spent (in minutes) stopped in rush-hour traffic on a specific snowy day last winter. Find the range, variance, and standard deviation for the data.

$$
\begin{array}{ccc}
52 & 56 & 53 \\
61 & 49 & 51 \\
53 & 58 & 53 \\
60 & 71 & 58 \\
\end{array}
$$

10. (8 points) The data show the population in thousands for a recent year of a sample of cities in South Carolina.

$$
\begin{array}{cccccc}
29 & 26 & 15 & 13 & 17 & 58 \\
14 & 25 & 37 & 19 & 40 & 67 \\
23 & 10 & 97 & 12 & 129 & \\
27 & 20 & 18 & 120 & 35 & \\
66 & 21 & 11 & 43 & 22 & \\
\end{array}
$$

(a) (4 points) Find the data value that corresponds to 40th percentile

(b) (4 points) Find the percentile corresponding to the data value 27

11. (8 points) The data show the gold reserves for a recent year for 11 world countries. Find the first and third quartiles and the IQR. The data are in millions of troy ounces.

$$
\begin{array}{cccc}
33.9 & 78.3 & 108.9 & 17.9 \\
78.8 & 24.6 & 19.7 & 33.3 \\
33.4 & 10.0 & 261.5 & \\
\end{array}
$$

12. (8 points) The average teacher's salary in a particular state is \$54,166. If the standard deviation is \$10,200, find the following.

(a) (4 points) The z-score corresponding to a salary of \$79,666

(b) (4 points) The salary corresponding to a z-score of -1.6