Mathematics for Liberal Arts (Math 102) Exam 2

Date: March 27, 2007 Professor Ilya Kofman

NAME: _____

You must show your work to get full credit!

Problem 1. *The following students earned scores on an exam out of 200 points. Make a histogram such that each column has width 50. Label the axes correctly.*

Marcia	193
Jan	171
Cindy	87
Greg	112
Peter	164
Bobby	77

Problem 2. *The following ratings were recorded at a dog show:*

$$94, 80, 75, 65, 60, 78, 46, 23, 58, 96, 85, 88, 75, 79, 55, 41, 49, 85, 71, 73$$

(a) *Make a stemplot for these ratings.*

(b) *Find the median rating.*

(c) *Find the quartiles, Q_1 and Q_3.*

(d) *Make a box plot for these ratings.*

(e) *If the top 25% of dogs went to the next round, what were their ratings?*

(f) *Which ratings were outliers?*

(g) *Make a histogram such that each column has width 20.*

(h) *Is the histogram symmetric, skewed to the right, or skewed to the left?*

Problem 3. *Measurements were recorded as follows:*

$$8.2,\ 6.7,\ 4.3,\ 9.1,\ 2.4,\ 3.6$$

(a) *Compute the mean.*

(b) *Compute the variance.*

(c) *Compute the standard deviation.*

Problem 4. *Scores on a recent SAT were roughly normal, with mean* 1062 *points, and standard deviation* 215 *points.*

(a) *What was the range of the middle* 68% *of SAT scores?*

(b) *What was the range of the middle* 50% *of SAT scores?*

(c) *How high must a student score to be in the top* 2.5% *of SAT scores?*

(d) *What percent of students scored above* 847 *points?*

(e) *What percent of students scored below* 417 *points?*

Problem 5. (a) *For a distribution that is skewed to the left, which is correct:*

$$(1)\ mean < median,\ (2)\ mean = median,\ (3)\ mean > median\ ?$$

(b) *For two normal distributions* D_1 *and* D_2 *that have equal means but different standard deviations:* $s_1 = 4.1$ *and* $s_2 = 2.7$*, which is correct about their bell curves:*

$$(1)\ Peak\ 1 < Peak\ 2,\ (2)\ Peak\ 1 = Peak2,\ (3)\ Peak\ 1 > Peak\ 2\ ?$$

(c) *and for their box plots, which is correct about the lengths of their top whiskers:*

$$(1)\ Length\ 1 < Length\ 2,\ (2)\ Length\ 1 = Length\ 2,\ (3)\ Length\ 1 > Length\ 2\ ?$$