

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	187
Jan	95
Cindy	73
Greg	164
Peter	112
Bobby	66

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

92, 80, 77, 64, 60, 78, 46, 22, 57, 96, 83, 85, 77, 79, 54, 41, 49, 83, 72, 75

- (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:*

8.4, 5.7, 4.6, 9.4, 2.1, 3.5

- (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 1036 points, and standard deviation 219 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 817 points?
- (e) What percent of students scored below 379 points?

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

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

(b) For two normal distributions D_1 and D_2 that have equal means but different standard deviations: $s_1 = 3.4$ and $s_2 = 5.2$, which is correct about their bell curves:

(1) $\text{Peak } 1 < \text{Peak } 2$, (2) $\text{Peak } 1 = \text{Peak } 2$, (3) $\text{Peak } 1 > \text{Peak } 2$?

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

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