

Math 111 EXAM#1

Name _____

I.D. # _____

1. (30 pts) Given the following data

34 37 42 44 48 50 53 56 59 64 65 71 92

(a) Use the five-number summary to describe the data.

(b) Make a boxplot.

(c) Make a stem plot.

(d) Make a histogram.

(e) Find the mean.

(f) Find the standard deviation.

2. (15 pts) Let Z be standard normal distribution.

(a) Find the percentage of $Z > -2.06$

(b) Find the percentage of Z between -0.82 and 1.35

(c) Ninety-nine percent of Z will be bigger than what value?

3. (15 pts) Scores on the Wechsler Adult Intelligence Scale (a standard "IQ test") for the 20 to 40 age group are approximately normal distributed with a mean of 112 and a standard deviation of 25.

(a) What percent of scores are above 100?

(b) What percent of scores are between 100 and 150?

(c) How high an IQ score is needed to be in the highest 10%?

4. Given the following data set,

x	1	2	3	4	5
y	3	3	2	5	7

(a) (5 pts) Draw a scatterplot by using x -variable as explanatory variable and y -variable as response variable.

(b) (2 pts) Is the association between x and y positive or negative?

(c) (6 pts) Calculate the correlation r between the two variables.

5. (8 pts) Which of the following variables are categorical and which are numerical?

(a) The student's ID number.

(b) The time a patient waited in an emergency room.

(c) The telephone area code of a patient.

(d) The age of a patient.

6. In a study of the stability of IQ scores, a large group of individuals is tested once at age 18 and again at age 35. The following results are obtained.

Age 18:	average = 105	SD = 20
Age 35:	average = 110	SD = 25
Correlation	$r = 0.8$	

To predict the score at age 35 for an individual who scored 115 at age 18,

(a) (10 pts) Find the regression line.

(b) (5 pts) According to your regression line, what score will you predict?

(c) (4 pts) In this study what are the explanatory and response variables?