

**Chapter 1 and 2
Practice Exam**

Vocabulary from Chapter 1:

Population

Sample

Parameter

Statistic

Descriptive Statistics

Inferential Statistics

Qualitative vs Quantitative Data

Sample problems (This is only a representation. Further examples may be taken from the assigned homework for each section.)

- 1) Find the five number summary and create a box-plot for the following set of data given in the stem and leaf plot.

```
  2 | 3 4
  3 | 1 6 7
  4 | 2 5 5 7
  5 | 3 4
  6 | 2
```

- 2) The following is the distribution of the ages of 40 students.

Age	Tally	Class Boundaries	Frequency	Class Midpoint
20-24	IIIII III			
25-29	IIIII IIIII II			
30-34	IIIII IIIII			
35-39	IIIII I			
40-44	IIII			

- a) Fill in the table
- b) Find the class width
- c) IF POSSIBLE Find how many students are
- A) less than 35
 - B) exactly 35
 - C) older than 50
- d) Find the mean and standard deviation of the frequency table

- e) For the data shown above, construct
- (i) a frequency histogram
 - (ii) a relative frequency histogram
 - (iii) a frequency polygon

3) The mean IQ of the students in three high schools are 108, 112, and 103. If there are, respectively 1024, 686, and 790 students in these schools, what is the average IQ of all the students In the three schools?

4) Considering the following sample

5, 13, 11, 10, 11, 7, 8, 9, 10

Find

- | | | |
|-------------|---|-----------------------|
| a) mode | b) median | c) mean |
| d) midrange | e) variance | f) standard deviation |
| g) range | h) Draw the stem and leaf plot for the data | |

5) Given the following frequency distribution of meals charged as business expenses by 60 real estate agents In a week.

Number of Meals	Frequency
0-1	16
2-3	25
4-5	13
6-7	4
8-9	2

Find the mean of the frequency table.

6) An airline's records show that it's flights between two cities arrive on the average 6.4 minutes late with a standard deviation of 1.8 minutes. What percentage of its flights between the two cities arrive anywhere between 2.8 minutes late and 8.2 minutes late? Assume the arrival times follow a bell-shaped distribution.

7) A statistics student scored a 75 on the first exam of the semester and an 82 on the second exam of the semester. The average score and standard deviation of scores for the two exams are given below. On which exam did the student perform relatively better, and why?

	First Exam	Second Exam
\bar{x}	74	85
s	10	7

Answer.

Why?

- 8) A survey was done and it was found that the mean age of a group of golfers was 35 with a standard deviation of 5. The median was 41 and the range was 42.
- Golfers who were age 26 had a Z score of
 - A Z score of -2.05 corresponds to an age of
- 9) The mean rate for satellite tv from a sample of households was \$35 per month with a standard deviation of \$5. Use the Empirical Rule to find the percentage of households with a satellite tv bill below \$25.
- 10) Given the population data of 16, 22, 25, 29 calculate the population variance σ_x^2 and the population standard deviation σ_x using the definition. (ie do not use for calculators statistics functions)