

Unit 1 - Summarizing Data
Week #1 - Practice Problems

Due: Monday September 15, 2008

1. For each of the following variables indicate whether it is quantitative or qualitative and specify the measurement scale that is employed when taking measurements on each: (source: Daniel, page 12, problem #6.)
 - a) Class standing of members of this class relative to each other
 - b) Admitting diagnosis of patients admitted to a mental health clinic
 - c) Weights of babies born in a hospital during a year
 - d) Gender of babies born in a hospital during a year
 - e) Range of motion of elbow joint of students enrolled in a university health sciences curriculum
 - f) Under-arm temperature of day-old infants born in a hospital

2. Using the data below (source: Daniel, 6th edition page 30, problem 2.3.5),

7	10	12	4	8	7	3	8	5
12	11	3	8	1	1	13	10	4
4	5	5	8	7	7	3	2	3
8	13	1	7	17	3	4	5	5
3	1	17	10	4	7	7	11	8

BY HAND ...

- a. Construct a stem and leaf display.
- b. Construct a frequency table with columns for frequency, relative frequency, cumulative frequency, and cumulative relative frequency.
- c. Construct a histogram.
- d. Construct a frequency polygon

3. Data were recorded on the age in years and height in cm of 20 high school students in a classroom.

Females		Males	
Age	Height	Age	Height
15	170	15	185
15	154	16	183
16	160	16	174
15	159	15	183
15	156	15	173
15	153	15	173
16	166	15	178
16	163	14	167
15	167	15	177
15	151		
16	171		

BY HAND

- Create a frequency table for age, with columns for frequency, relative frequency, cumulative frequency, and cumulative relative frequency.
 - Create a histogram for age.
 - For each sex, create a stem-and-leaf display for height. What does a comparison of the displays suggest about the students?
 - For each sex, create histograms for height using the same scale.
4. Let $x_1=3$, $x_2=1$, $x_3=4$, and $x_4=6$
- Express the following sum in sigma notation and evaluate numerically.

$$(x_1 + x_2 + x_3 + x_4)^2$$

- Express the following sum in sigma notation and evaluate numerically.

$$x_1^2 + x_2^2 + x_3^2 + x_4^2$$

- Evaluate the following numerically.

$$\sum (X_i - 1)^2 \text{ for } i=1 \dots 4.$$

- Evaluate the following numerically.

$$\sum 3X_i \text{ for } i=1 \dots 4.$$