

Frequency Distributions and Graphs

Assignment: Heiman, Chapter 3

Terms you should know.

Frequency Distribution

Raw Score

Range

Grouped Frequency Distribution

Cumulative Frequency Distribution

Relative Frequency

Percent

* Percentile

Histogram

Frequency Polygon

Cumulative Percentage Curve

Bar Graph

Skewed Distribution
.....
.....

Positively Skewed
Distribution
.....
.....

Negatively Skewed
Distribution
.....
.....

Rectangular Distribution
.....
.....

Bi-modal Distribution
.....
.....

Multi-modal Distribution
.....
.....

Formulas and Symbols You Should Know.

f

*
 N

$\frac{f}{N}$

P_N

Homework #2: Calculations You Should Master

Name: _____ (This is my work, and my work alone.)

1. Construct a simple frequency distribution using the following data.

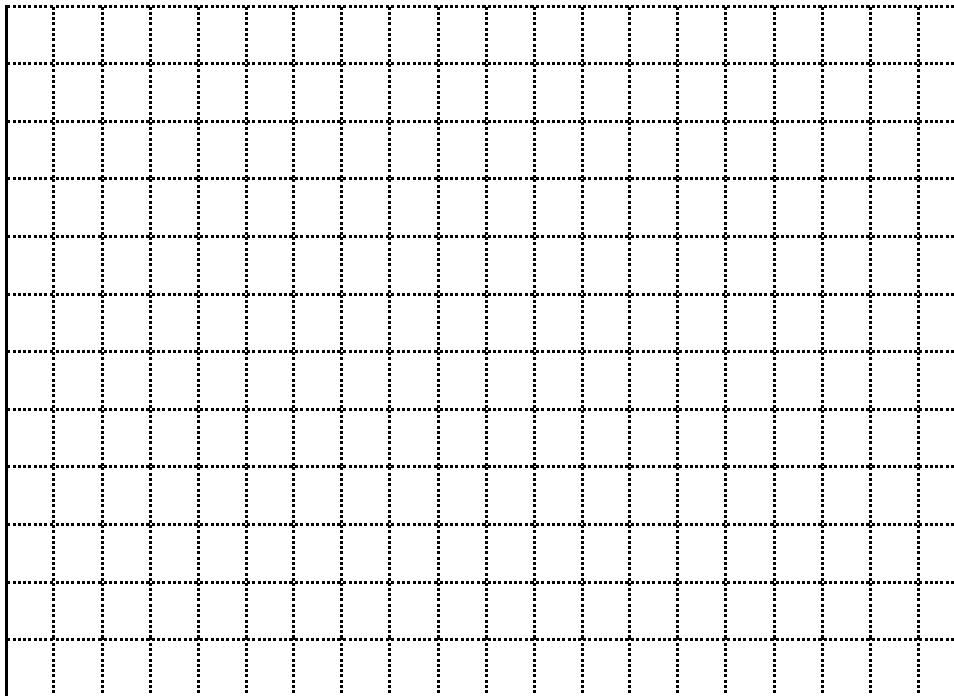
15	20	18	16	17
19	12	14	15	18
17	14	17	19	16
18	17	12	13	18
12	15	16	12	17

	<i>f</i>	<i>Cum f</i>	%	<i>Cum %</i>

2. Draw and label a bar graph.

The following information was collected from a survey given to former patients at a hospital emergency room. The survey was mailed to 4,302 people; 629 surveys were returned for analysis. Respondents were asked to indicate their agreement with each of 42 statements using a 5-point scale: 1 = Strongly Disagree through 5 = Strongly Agree. The summary for one of the questions is shown below. Draw and label bar graph to represent the responses to this question.

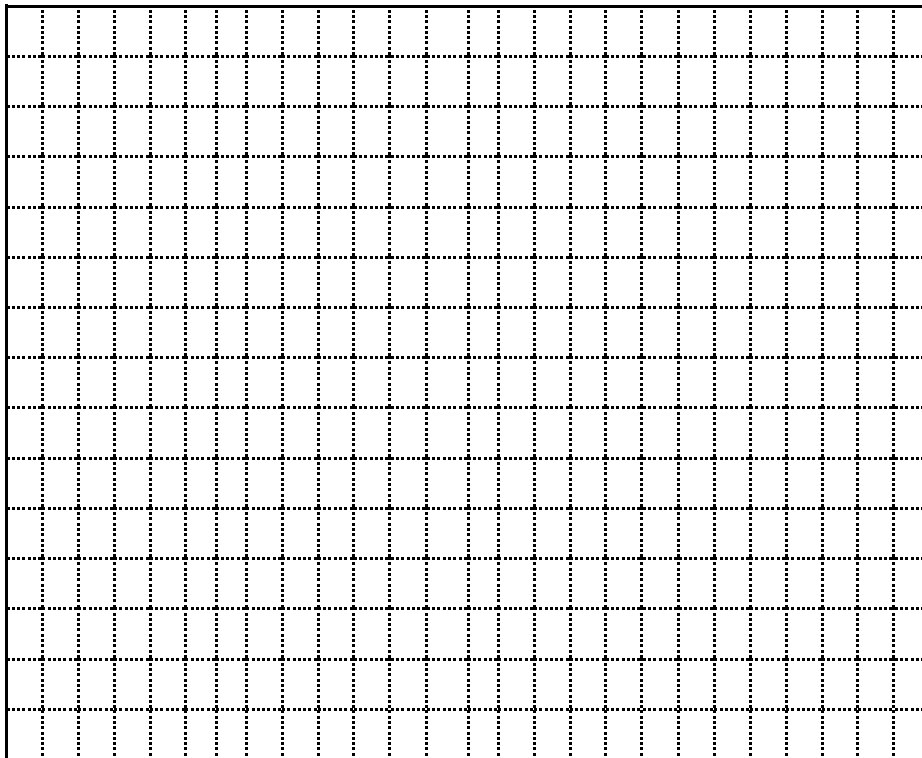
<i>The amount of time I had to wait for treatment in the Emergency Room was reasonable.</i>				
Level of agreement	Scale	Frequency	Percent. Based on the total sample	Percent Based on people who actually answered this question.
Strongly Disagree	1	78	1.8	12.4
Disagree	2	66	1.5	10.5
Neither Agree nor Disagree	3	53	1.2	8.4
Agree	4	275	6.3	43.7
Strongly Agree	5	157	3.6	25.0
Missing		3673	84.5	0.0
	Total	4302	100.0	100.0



Thorny question: Why shouldn't you include the people who did not respond to the survey? These are the people who were coded as 'Missing'.

3. Draw and label a histogram. The following data represent responses to a personality test. The test was an experimental measure of respondents' Assertiveness. The scores ranged from 0 through 18. The simple frequency distribution is shown below. Draw a histogram using these data.

Raw Score	Frequency	Percent	Cumulative Percent
18	8	.2	100.0
17	21	.6	99.8
16	43	1.2	99.2
15	56	1.5	98.0
14	71	2.0	96.5
13	104	2.9	94.5
12	118	3.3	91.7
11	165	4.5	88.4
10	162	4.5	83.9
9	190	5.2	79.4
8	244	6.7	74.2
7	248	6.8	67.4
6	264	7.3	60.6
5	347	9.6	53.3
4	340	9.4	43.8
3	342	9.4	34.4
2	326	9.0	25.0
1	339	9.3	16.0
0	241	6.0	6.6



1. What is the shape of this distribution?

4. The following questions relate to this distribution of scores.

Class Interval	f	Cum f	%	Cum %
90 - 99	6	C	12.24	100.00
80 - A	8	43	16.33	E
70 - 79	12	35	24.49	71.43
60 - 69	10	23	D	46.94
50 - 59	7	13	14.29	26.53
40 - 49	6	6	12.24	12.24
	B		F	.

What figure goes at each of the following letters?

A. _____ B. _____ C. _____

D. _____ E. _____ F. _____

What symbol is used to indicate the figure that goes at B? _____

What is i ? _____

What is your best estimate of the range for this problem? _____

Why can you not be absolutely sure that this is the true range?

In what interval does P_{50} fall? _____

5. When would you use a histogram and when should you use a bar chart?

6. Use the data in the SPSS data file you have been given and do the following.
- a. A frequency distribution for the age of the respondents.
 - i. What is the youngest age? _____ How often does it appear? _____
 - ii. What was the oldest age? _____ How often does it appear? _____
 - iii. Does the age distribution appear to be normally distributed? _____ Why do you give this answer?
 - iv. Approximately how many people are there in this
 - b. Using SPSS, prepare and label a histogram for the age data.