Exercise Set I.1

1. (1.1) The following measurements were recorded for the drying time, in hours, of a certain brand of latex paint.

Table: Data for Exercise I.1

3.4	2.5	4.8	2.9	3.6
2.8	3.3	5.6	3.7	2.8
4.4	4.0	5.2	3.0	4.8

Assume that the measurements are a simple random sample.

(a) What is the sample size for the above sample?
(b) Calculate the sample mean for this data.
(c) Calculate the sample median.
(d) Plot the data by way of a dot plot.
(e) Compute the 20% trimmed mean for the above data set.

Exercise Set I.2

2 (1.3) A certain polymer is used for evacuation systems for aircraft. It is important that the polymer be resistant to the aging process. Twenty specimens of the polymer were used in an experiment. Ten were assigned randomly to be exposed to the accelerated batch aging process that involved exposure to high temperatures for 10 days. Measurements of tensile strength of the specimens were made and the following data were recorded on tensile strength in psi.

Table: Data for Exercise I.2

No aging:	227	222	218	217	225
	218	216	229	228	221
Aging:	219	214	215	211	209
	218	203	204	201	205

(a) Do a dot plot of the data.
(b) From your plot, does it appear as if the aging process has had an effect on the tensile strength of this polymer? Explain.
(c) Calculate the sample mean tensile strength of the two samples.
(d) Calculate the median for both. Discuss the similarity or lack of similarity between the mean and median of each group.

Exercise Set I.3

3 (1.7) Consider the drying time data for Exercise I.1. Compute the sample-variance and sample standard deviation

4 (1.9) Exercise I.2 showed samples of tensile strength data, one for specimens that were exposed to an aging process and one in which there was no aging of the specimens. Calculate the sample variance as well as standard deviation in tensile strength for both samples.

Exercise Set I.4

5 (1.17) A study of the effects of smoking on sleep patterns is conducted. The measure observed is the time in minutes, that it takes to fall asleep. These data are obtained:

Table: Data for Exercise I.5

Smokers:	69.3	56.0	22.1	47.6
	53.2	48.1	52.7	34.4
	60.2	43.8	23.2	13.8
Nonsmokers:	28.6	25.1	26.4	34.9
	29.8	28.4	38.5	30.2
	30.6	31.8	41.6	21.1
	36.0	37.9	13.9	

(a) Find the sample mean for each group.
(b) Find the sample standard deviation for each group.
(c) Make a dot plot of the data sets A and B on the same line.
(d) Comment on what kind of impact smoking appears to have on the time required to fall asleep.

Exercise Set I.5

6 (1.18) The following scores represent the final examination grade for an elementary statistics course:

Table: Data for Exercise I.6

23	60	79	32	57	74	52	70	82
36	80	77	81	95	41	65	92	85
55	76	52	10	64	75	78	25	80
98	81	67	41	71	83	54	64	72
88	62	74	43	60	78	89	76	84
48	84	90	15	79	34	67	17	82
69	74	63	80	85	61			

(a) Construct a stem-and-leaf plot for the examhiation grades in which the stems are $1, 2, 3, \ldots, 9$

(b) Set up a relative frequency distribution.

(c) Construct a relative frequency histogram, draw an estimate of the graph of the distribution and discuss the skewness of the distribution.

(d) Compute the sample mean, sample median, and sample standard deviation.