Faculty of Computers and Information Sciences
2nd year
Statistical analysis and Applications (SCC234)

Sheet 1_ Graphical Representations

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

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) Plot the data by way of a dot plot.

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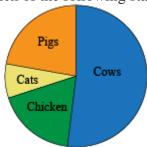
No aging:	227	222	218	217	225
	218	216	229	228	221
Aging:	219	214	215	211	209
	218	203	204	201	205

(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.

3. Different cats were weighed. We had a tough time getting them all to sit on the scale without scratching us half to death. Anyway, we finally found them to have the following weights, in pounds.

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$10, 10\frac{1}{4}, 10\frac{1}{2}, 11\frac{1}{4}, 11\frac{2}{3}, 12\frac{3}{4}, 13, 13\frac{1}{2}$

(a)   Draw a histogram for the data with interval 1 pound.

(b)   Draw a histogram for the data with interval $\frac{1}{3}$ pound.

4. According to the pie graph, which of the following statements is false?

a) More than half the animals on the farm are cows.
b) One quarter of the animals on the farm are chickens.
c) There are more pigs than cats on the farm.
d) Fewer than one quarter of the animals on the farm are pigs.
e) No cats on the farm have given birth to cows.

5. The following scores represent the final examination grades for an elementary statistics course:

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			

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

6. The following data represent the length of life in years, measured to the nearest tenth, of 30 similar fuel pumps:

2.0	3.0	0.3	3.3	1.3	0.4
0.2	6.0	5.5	6.5	0.2	2.3
1.5	4.0	5.9	1.8	4.7	0.7
4.5	0.3	1.5	0.5	2.5	5.0
1.0	6.0	5.6	6.0	1.2	0.2

Set up a relative frequency distribution.

7. The following data represent the length of life, in seconds, of 50 fruit flies subject to a new spray in a controlled laboratory experiment:

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17	20	10	9	23	13	12	19	18	24
12	14	6	9	13	6	7	10	13	7
16	18	8	13	3	32	9	7	10	11
13	7	18	7	10	4	27	19	16	8
7	10	5	14	15	10	9	6	7	15

Set up a relative frequency distribution and construct a relative frequency histogram.