WorkSHEET 14.1 & 14.2 Statistics I & II

Name: _____

1 Classify the following data as categorical data or numerical data.

(a) Favourite cooking show watched on TV
(b) Number of books borrowed from the library
(c) Number of buses on your route each day.
(d) Hair colour of students in your class

2 For the following data collection activities, determine whether the size of the data collected is a sample or population, and the type of data (census, survey or experimental, and random, stratified or biased).

(a) The average age of your cousins

(b) Data collected from the distance a spring stretches when various masses are added to the spring.

(c) All students in a school donated to a natural disaster levy. The amounts contributed by the Year 9 students were used to indicate the average amount contributed per student.

3 A committee of 9 students is required to form the SRC at a school. Use stratified sampling to determine the number from each year level from the population given below.

Year level	Population
7	45
8	47
9	38
10	51
11	29
12	21

4 Rank the following surveying techniques according to how 'random' they are:

(a) surveying your father's friends
(b) surveying males over 21 only
(c) surveying every 10th person who enters a shopping centre
(d) surveying by selecting telephone numbers randomly and calling them up.

5 What groups (or strata) would be used when surveying the following populations:

(a) students at your school?
(b) members of federal parliament?
(c) members of the Australian Army?

6 A survey of 20 members of your school is required, using stratified sampling. If 15% of the students are in Year 9, how many Year 9 students should be sampled?

7 Use the frequency distribution table below to answer the following questions.

Score	Frequency
11	13
12	17
13	8
14	12
15	9

(a) How many data results were collected?

(b) Which score has the highest frequency?
(c) Which score(s) has the lowest frequency?

8 A random sample of 20 young people was surveyed to find the number of colours they have in their hair. Here are the raw data collected:
1, 3, 4, 2, 1, 2, 2, 2, 1, 1, 2, 2, 3, 3, 1, 2, 3, 1, 1, 2.

(a) Organise the data into a frequency distribution table.

(b) How many people have 1 colour in their hair?

(c) Which score has the highest frequency?

9 Use the data in Question **8** to draw a dot plot showing the number of hair colours in the sample.

10 The following data represents the scores on a Maths test for 30 students. Construct a stem-and-leaf plot.

78, 91, 45, 81, 67, 54, 59, 44, 31, 19,
22, 98, 70, 60, 66, 49, 57, 82, 74, 66,
69, 72, 81, 47, 50, 62, 83, 84, 46, 12

1 Perform stratified sampling on the following data set, where 200 people are to be surveyed.

Age group	Male	Female
21–30	748	702
31–45	600	750
Over 45	500	650

2 The following data represent the masses (in kg) of the 24 jockeys at last year's Melbourne Cup. This data set will be used in questions **2** and **3**.

50, 51, 51, 52, 52, 52, 52, 53, 53, 53, 54, 54, 54, 54, 54, 54, 55, 55, 55, 56, 56, 56, 57, 58

(a) From these data construct a frequency table
(b) Use your table to calculate the mean weight of the jockeys correct to 1 decimal place.
(c) What is the most common weight of the jockeys?

3 Using the data from question **2**, construct a histogram on graph paper.

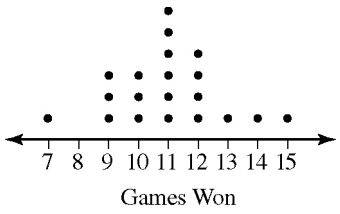
4 At Sir Winston Churchill High School there are two Year 9 mathematics classes, each with 22 students. The following scores are the average marks for each student of each class.

Class 1: 34, 47, 54, 59, 60, 63, 66, 69, 73, 77, 78, 78, 79, 80, 82, 83, 85, 86, 88, 89, 90, 91

Class 2: 23, 31, 37, 41, 47, 52, 54, 56, 60, 62, 62, 63, 66, 68, 70, 72, 72, 75, 77, 79, 81, 88

(a) Produce a back-to-back stem-and-leaf plot.
(b) Find the median for each class.

5 The following dot plot represents the number of games won (out of a possible 20) by the East Westville Football Club over the last 20 years.



From this data, determine:
(a) the mode
(b) the median.

6 The following data represent the heights of 20 students in a Year 9 class. Construct a frequency distribution table by grouping the data in 5-cm intervals.

147, 149, 151, 151, 155, 158, 160, 162, 162, 162, 163, 165, 168, 169, 170, 171, 172, 173, 173, 175.

The first interval should be 145–149.

From your distribution find:
(a) the modal class
(b) the mean height of the students.

7 Key: 1|4 = 14

Stem	Leaf
1	4 5
2	0 1 1 2
3	4 7
4	8 9 9 9
5	0 2 2 3

Use the stem-and-leaf plot above to find:
(a) the mode
(b) the range
(c) the median
(d) the upper and lower quartiles
(e) the inter quartile range.

8 Use the table of information to answer the following questions.

Temperature during the week							
Day	1	2	3	4	5	6	7
Temp °C	35	37	29	32	25	38	37

(a) What was the most common temperature for the week?

(b) What was the average temperature?

9 Compute the mean from the following frequency table.

Interval	Frequency
0–<5	11
5–<10	14
10–<15	17
15–<20	20
20–<25	22
25–<30	29

10 For the following data, calculate the:
(a) range
(b) interquartile range.

3, 5, 6, 7, 8, 9, 10, 10, 11, 12, 14, 15, 16, 17, 17, 18, 18, 19, 19, 20