

DESCRIPTIVE STATISTICS - CHAPTER REVIEW

The data set shown is to be used for questions 8 and 9.

Stem	Leaf
3	0 1 4 6 7
4	3 3 3 3 4 5
5	8 9
6	1 3 4 6 6 6 7 8
7	0 6 7 7 9
8	1 2 2 2 5 6
9	2 2 2 5 7

8 Select the option that best represents the median of the data set.

- A 6 B 43 C 63 D 66

9 Select the option that best represents the IQR of the data set.

- A 38.5 B 43.5 C 38 D 39

10 For the following data set, select the answer that best represents the IQR.

2, 4, 5, 2, 4, 3, 1, 4, 6, 5, 4, 7, 8, 6, 8, 4, 5, 6, 2, 4, 3, 1, 3, 5, 7, 9, 1, 3, 2, 4, 6, 5, 3, 2, 1, 5, 2, 5, 6

- A 2 B 4 C 4 to 5 D 3 to 6

11 For the following data set, select the answer that best represents the IQR.

<i>x</i>	8	13	15	19	21	25
<i>f</i>	4	8	6	3	1	2

- A 2.5 B 4 C 8 D 13

12 A teacher recorded the results for a test, marked out of 50, as follows:

12, 17, 22, 23, 26, 26, 27, 29, 30, 31, 31, 32, 32, 35, 35, 37, 38, 40, 41, 42, 42, 49

After the tests were returned the student who had scored 38 pointed out that several pages had not been corrected. This increased the mark to 48. Which of the following statements correctly describes what would happen to the class statistics?

- A The standard deviation and mean would both decrease.
 B The standard deviation and mean would both increase.
 C The standard deviation would increase and the mean would decrease.
 D The standard deviation would decrease and the mean would increase.

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- 13** You have recorded, as a sample, the number of cars that pass the school, in 5 minute blocks, for 2 hours:
20, 26, 24, 26, 19, 18, 10, 33, 28, 42, 5, 6, 18, 12, 16, 32, 41, 38, 25, 26, 15, 10, 29, 30
In your presentation about traffic volume outside your school, what should you report as the value for the standard deviation?

A 10.19 **B** 14 **C** 10.41 **D** 22.88

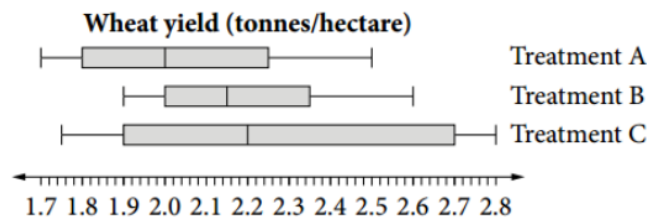
- 14** The height of every student in the school was recorded. The results are shown in the following table.

Height of student (cm)	Frequency
140–<145	5
145–<150	11
150–<155	18
155–<160	26
160–<165	44
165–<170	92
170–<175	64
175–<180	32
180–<185	17
185–<190	9
190–<195	4

What is the best estimate for the standard deviation of the school population?

A 9.65 **B** 9.66 **C** 10 **D** 11.27

- 15** The parallel box plots below compare the yield per hectare of wheat for paddocks treated in various ways.



Which of the following statements is incorrect?

- A** The interquartile range for treatment B is the smallest.
B Treatment C produced the most consistent results.
C About 50% of the paddocks for treatment C had a yield greater than 2.2 tonnes/hectare.
D About 25% of the paddocks for treatment A had a yield between 1.7 and 1.8 tonnes/hectare.

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- 16** The following table appeared in an article in *The Age* newspaper in 2013 under the headline 'Victoria's organ donor rate plummets in 2012' and with the sub-headline 'State still leads nation in numbers'.

Donors per million of population			
State	2011	2012	
NSW	11.0	12.4	↑
Vic	19.3	16.3	↓
Qld	15.0	17.0	↑
SA	21.4	17.5	↓
WA	14.0	13.2	↓
Tas	11.7	29.0	↑
NT	17.3	33.5	↑
ACT	13.7	20.3	↑
Australia	15.1	15.6	↑

Are the following statements true or false? If false, rewrite the statement to make it true.

- The data in the table does not seem to support the sub-headline because the figure of 16.3 is less than those for the majority of other states.
- On reading the table heading 'Donors per million of population', Victoria obviously has a higher population than most states. In 2012, for every million Victorian residents only 16.3 people were organ donors.
- The article indicates there were 92 Victorian organ donors in 2012. Based on this figure, calculate an estimate for the 2012 population of Victoria, to the nearest thousand.
- Based on the data in the table, if Australia's population in 2012 was approximately 22 692 308, estimate the number of organ donors.
- However, the article indicates that 1052 Australians received transplants from deceased donors in 2012. This is because people donated more than one organ.
- The figures presented in the table are most likely to represent estimates based on a sample.
- This article represents the analysis and communication part of the statistical investigation process.

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- 17** State the correct data type for each of the following examples.
- (a) The height jumped by each of the competitors in the school pole vault.
 - (b) The shirt size of each of the students in your class.
 - (c) The favourite colour of each of the students in your class.
 - (d) The highest level of education achieved by each of the respondents to a survey.
- 18** Into which interval of the following data set does the median fall?

x	Frequency
0–4	2
5–9	5
10–14	7
15–19	3
20–24	1

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26 A refrigerator manufacturer received the following complaints from purchasers of new refrigerators.

Defect	Frequency
Dent in door	16
Door seal	12
Damaged box	8
Faulty light	6
Wiring defect	2
Refrigerant leak	1
Total	45

- (a) Add the percentage and cumulative percentage columns to this table.
- (b) Draw the Pareto chart for this information.
- (c) What steps should the manufacturer take to reduce the number of complaints?