

UNIT 18 *Quantitative Data*

Extra Exercises 18.1

1. Mr Bryant keeps a record of the number of Year 7 pupils absent each day over a 6-week period; his records are shown below:

3	1	0	2	7	3
2	4	3	2	5	4
0	0	2	3	4	5
3	2	1	5	4	1
3	1	3	3	2	2

- (a) Draw and complete a tally chart for these data.
- (b) Draw a vertical line diagram for these data.
- (c) What is the most common number of absent pupils?
2. A taxi driver writes down the number of times he has to stop at red traffic lights on all the journeys he makes one day; these are listed below:

4	3	7	6	2	1	1	2
3	1	3	6	4	3	5	2
1	1	2	3	6	2	1	4

- (a) Draw and complete a tally chart for these data.
- (b) Draw a vertical line diagram for these data.
- (c) How many journeys did the taxi driver make that day?
- (d) What was the most common number of red lights on these journeys?
- (e) How many times in total did he stop at red traffic lights?

UNIT 18 *Quantitative Data***Extra Exercises 18.2**

1. Write down the *mean*, *median* and *mode* of each of the following sets of data:

(a) 7 7 8 3 9

(b) 6 4 3 2 5 6 3 6 6 8 6

(c) 9 4 3 5 5 6 7 10

(d) 3 2 2 2 3 4 5 7 9 2 11 10

2. During a week in January the number of children absent from class 7G was recorded; these numbers are given below:

0 2 1 0 5

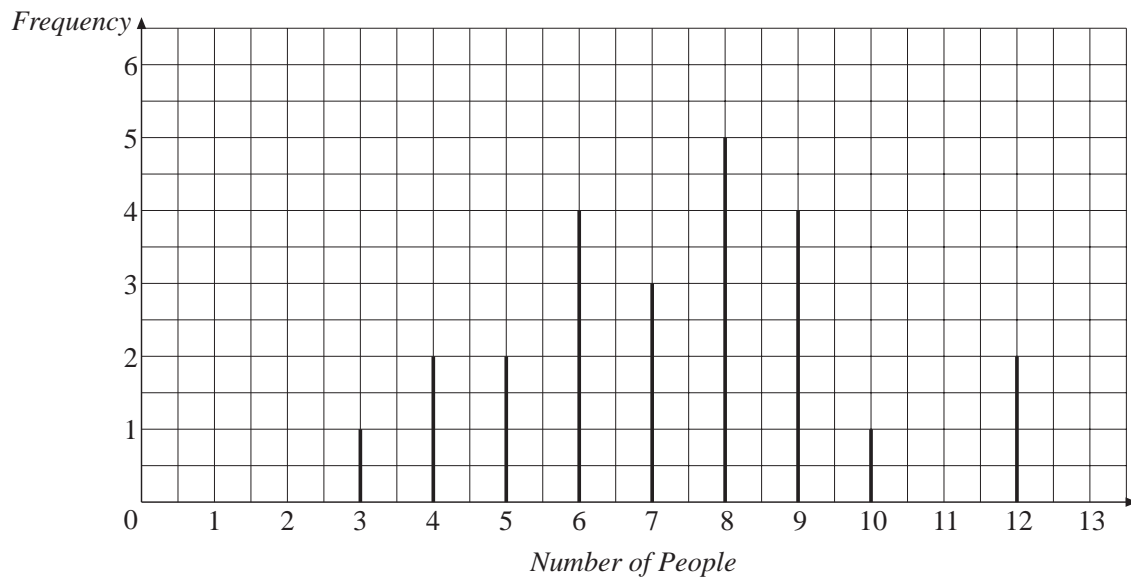
- (a) Write down the *mean*, *median* and *mode* of these data.
(b) Which of these averages gives the *best* impression of the class?
(c) Which of these averages gives the *worst* impression of the class?
3. The numbers of goals scored by a school hockey team in their matches are listed below:

6 1 0 2 2 3 4 0 1 1

- (a) Write down the *mean*, *median* and *mode* of these data.
(b) The team coach wants to convince the headteacher that the hockey team are doing really well. Which average should she use?
(c) The coach from another team wants to convince his team that their match against the school team will be easy. Which average should he use?

UNIT 18 *Quantitative Data***Extra Exercises 18.3**

- Determine the *range* of each of these sets of data:
 - 3 4 6 3 7 8 2 12
 - 16 19 18 21 32 17 49 11
 - 16 22 32 104 66 92 74 55
 - 121 152 163 168 120 139 149 157
- The *range* of a set of four numbers is 9. If three of the numbers are 18, 22 and 21, what could be the fourth number?
- Determine the *range* of the data illustrated in this vertical line diagram:



UNIT 18 *Quantitative Data*

Extra Exercises 18.4

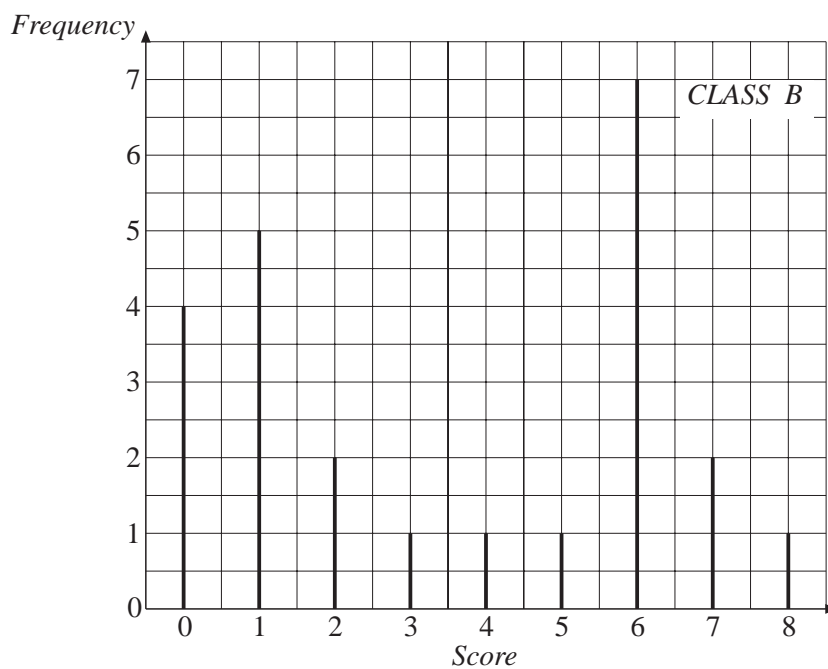
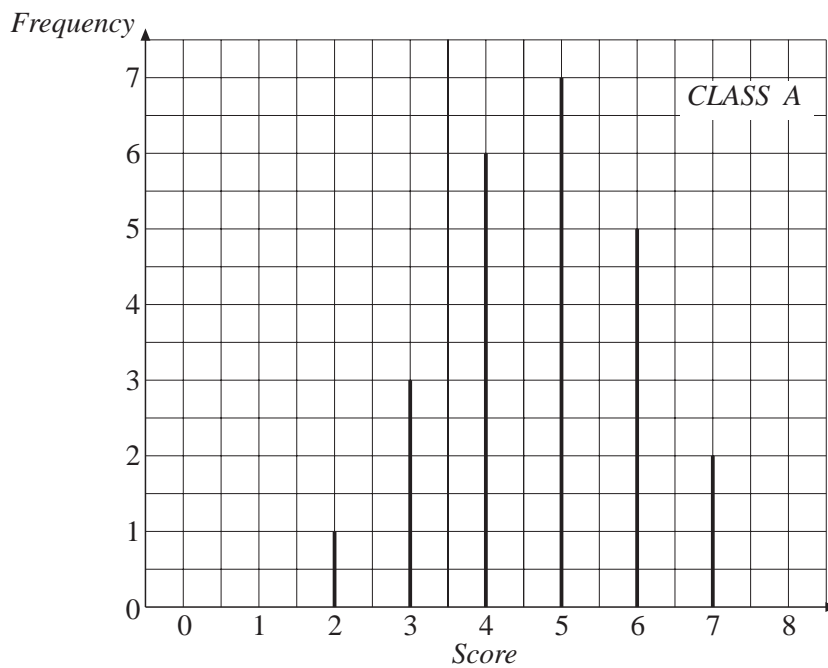
1. (a) Calculate the *mean* and *range* for these two data sets:

Set A 3 6 7 9 10 15 16 8 9 9

Set B 8 10 11 8 7 12 9 9 8 10

(b) Describe the differences between the two sets.

2. These vertical line diagrams show the results obtained by 2 classes on a spelling test:



Extra Exercises 18.4

- (a) How many people are there in each class?
 - (b) Write down the *mode* for each class.
 - (c) Write down the *range* for each class.
 - (d) Write down the *median* for each class
 - (e) Which class do you think is better at spelling? Explain your answer.
3. A gardener has 2 different types of apple tree in his garden. He keeps records of the number of apples that each tree produces each year.

Tree A 14 16 22 18 19 25 18 20

Tree B 9 30 10 28 30 11 12 14

Describe the differences between the data for each tree, using the *mean* and *range* in your answer.

UNIT 18 *Quantitative Data***Extra Exercises 18.5**

1. (a) Calculate the 4 point moving averages for this set of data:
13 16 19 14 16 19 22 17

(b) Predict the next 2 values.

2. By finding the 4 point moving averages, predict the next two values of this set of data:
3.1 6.2 9.4 4.1 3.9 7.0 10.2 4.9

3. (a) Calculate the 4 point moving averages for this set of data:
10.1 8.7 6.5 12.3 10.5 9.5 7.7 13.9

(b) Describe how the moving averages are changing.

(c) Predict the next two values.

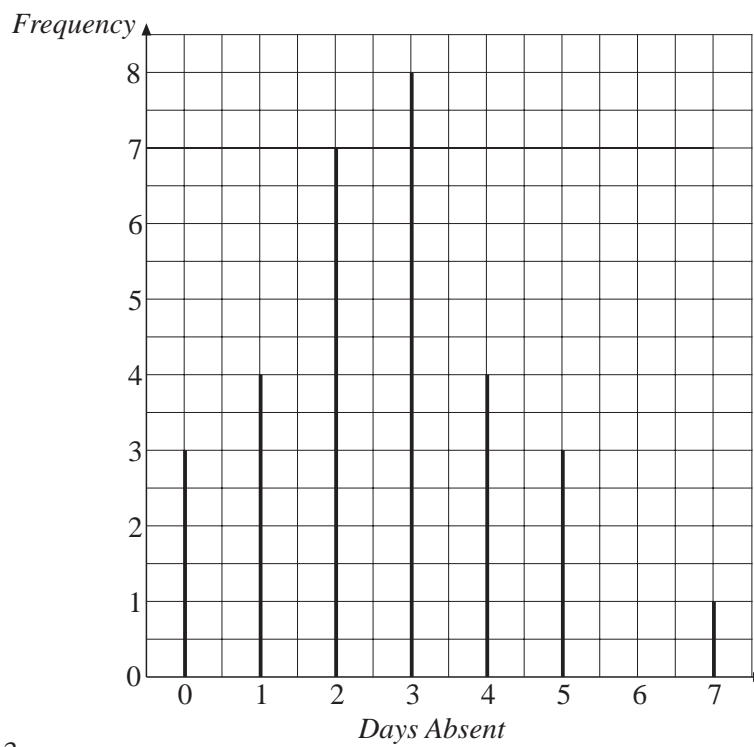
Extra Exercises 18.1

Answers

1. (a)

<i>Days absent</i>	<i>Tally</i>	<i>Frequency</i>
0		3
1		4
2		7
3		8
4		4
5		3
6		0
7		1

(b)

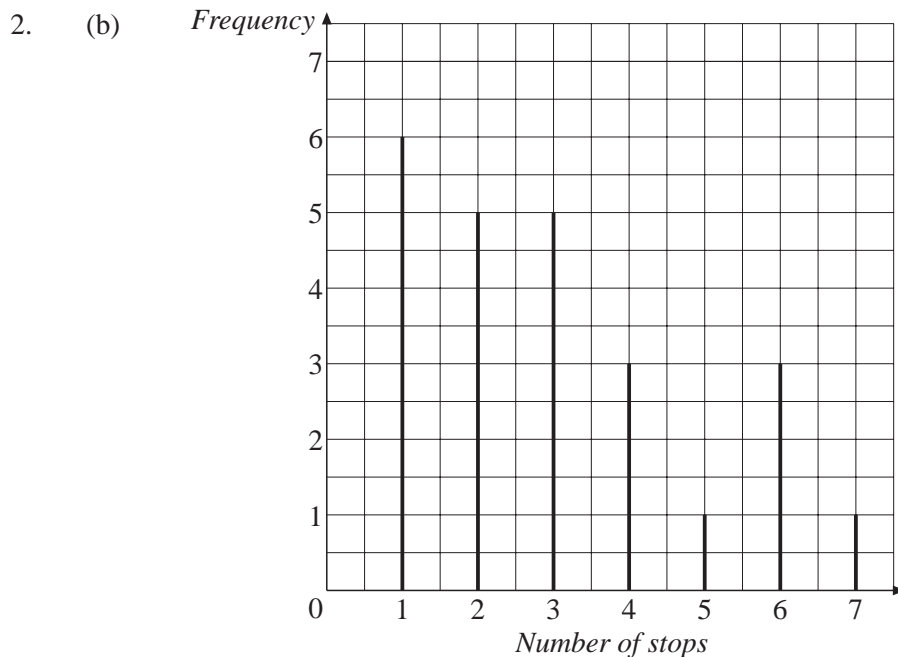


(c) 3

2. (a)

<i>No. Stops</i>	<i>Tally</i>	<i>Frequency</i>
0		0
1		6
2		5
3		5
4		3
5		1
6		3
7		1

Extra Exercises 18.1



- (c) 24 (d) 1 (e) 73

Extra Exercises 18.2

Answers

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1. (a) Mean = 6.8 Median = 7 Mode = 7
 (b) Mean = 5 Median = 6 Mode = 6
 (c) Mean = 6.125 Median = 5 Mode = 5
 (d) Mean = 5 Median = 3.5 Mode = 2
2. (a) Mean = 1.6 Median = 1 Mode = 0
 (b) Mode: best impression must be least number of absences - hence mode = 0
 (c) Mean: worst is most absences - mean = 1.6
3. (a) Mean = 2 Median = 1.5 Mode = 1
 (b) Mean (c) Mode

Extra Exercises 18.3

Answers

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1. (a) 10 (b) 38 (c) 88 (d) 48
 2. 12 or 27
 3. 9

Extra Exercises 18.4

Answers

1. (a) A: mean = 9.2, range = 13
B: mean = 9.2, range = 5
- (b) The two samples have the same mean, but B has a much smaller range. Consequently, B has values more closely grouped around the mean value, while A is much more variable, with both considerably higher and lower values at the extremes.
2. (a) 24 people in each class.
- (b) Mode: A 5; B 6
- (c) Range: A 5; B 8
- (d) Median: A 5; B 3.5
- (e) A, since it has higher median and smaller range.
Mode is misleading in this case.
B has some better spellers than A, but more people who are worse at spelling.
3. A: mean = 19, range = 11
B: mean = 18, range = 21
Means are similar, but A has smaller range.
Larger number on occasions for tree B, but also smaller number of apples.
Tree A more consistent, with smaller range.

Extra Exercises 18.5

Answers

1. (a) 15.5 16.25 17 17.75 18.5
(b) 19 22
2. Moving averages: 5.7 5.9 6.1 6.3 6.5
Next two terms: 4.7 7.8
3. (a) 9.4 9.5 9.7 10.0 10.4
(b) Increasing by 0.1, 0.2, 0.3, 0.4, ... etc.
(c) 12.5, 11.9