Exercise 1.6 – Median, Quartiles and Cumulative Frequency for Ungrouped Data

1 These are the test marks of 11 students.

52, 61, 78, 49, 47, 79, 54, 58, 62, 73, 72

Find

(i) the median,

(ii) the lower quartile,

(iii) the upper quartile,

(iv) the interquartile range.

2 For each of the following sets of numbers, find

(i) the median,

(ii) the interquartile range.

(a) 4, 6, 18, 25, 9, 16, 22, 5, 20, 4, 8, 15, 9, 13, 10

(b) 192, 217, 189, 210, 214, 204

(c) 1267, 1896, 895, 3457, 2164, 2347, 2347, 2045

(d) 0.7, 0.4, 0.65, 0.78, 0.45, 0.32, 1.9, 0.0078, 0.54, 1.32

(e) 0.3, −1.5, −3.5, −3.05, 1.4, −2.6, −0.02

3 The table shows the scores obtained when a die is thrown 60 times.

Score	1	2	3	4	5	6
Frequency	12	9	8	13	9	9

Find

(i) the median score,

(ii) the lower quartile and upper quartile,

(iii) the interquartile range.

4 Find the median and interquartile range of the distributions represented by the stem-and-le diagrams:

(i)

Stem	Leaf	
1	0 5	(2)
2	3 4 4	(3)
3	2 8 8	(3)
4	1 5 6 6 7	(5)
5	2 3 3	(3)
6	5 7 8 8	(4)
7	2 4	(2)
8	0	(1)

Key: 5 | 2 means 5.2

(ii)

Stem	Leaf
12	3 4 3 9
13	2 2 3 4 7 8 8 9 9
14	0 3 4 4 7
15	1 2

Key: 12 | 3 means 0.123

5

x	5	6	7	8	9	10
f	6	11	15	18	6	5

For the above frequency distribution, find

(i) the mode,

(ii) the median,

(iii) the mean.

6

x	12	13	14	15	16
f	3	9	11	15	17

For the above frequency distribution, find

(i) the range,

(ii) the interquartile range,

(iii) the standard deviation.

8 In a survey on the number of absences in the term of the 32 children in a class, the data were recorded in a cumulative frequency table.

Times absent	0	$\leqslant 1$	$\leqslant 2$	$\leqslant 3$	$\leqslant 4$	$\leqslant 5$	$\leqslant 6$	$\leqslant 7$
Cumulative frequency	5	11	20	23	27	28	31	32

(i) Find the median number of absences.

(ii) Find the interquartile range.

(iii) Copy and complete this frequency table.

Times absent	0	1	2	3	4	5	6	7
Frequency								

(iv) Calculate the mean number of absences per child.

(v) Calculate the standard deviation.

9 The stem-and-leaf diagram below represents data collected for the number of hits on an internet site on each day in March 2007. There is one missing value, denoted by x.

0	0 1 5 6	(4)
1	1 3 5 6 6 8	(6)
2	1 1 2 3 4 4 4 8 9	(9)
3	1 2 2 2 x 8 9	(7)
4	2 5 6 7 9	(5)

Key: 1 \| 5 represents 15 hits

(i) Find the median and lower quartile for the number of hits each day.

(ii) The interquartile range is 19. Find the value of x.

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