

5.4 Answers

GCSE Mathematics Statistics II : Handelling and Processing Data

5.4.1 Solution (Example)

(i)

Score	Frequency	Cumulative Frequency
0	1	1
1	0	1
2	0	1
3	6	7
4	9	16
5	11	27
6	17	44
7	21	65
8	16	81
9	11	92
10	7	99

The Cumulative Frequency is the running total of the number of pupils accounted for so far at the **END** of each interval.

If may help students understand what the table is telling them by starting to write out the data in a list....

0 3 3 3 3 3 3 4 4 4
 4 4 4 4 4 4 5 5 5 5
 5 5 5 5 5 5 5 6

* ^ *

(ii) As there are 99 items of data;

$$\frac{99 + 1}{4} = 25$$

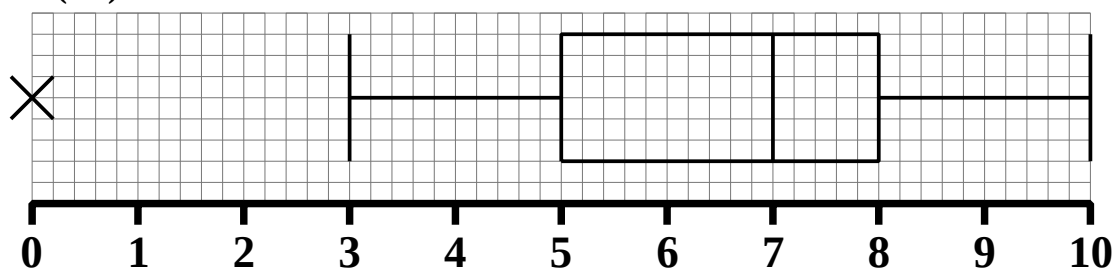
The lower quartile is the 25th item in the list which is a score of 5

The upper quartile is the 75th item in the list which is a score of 8

∴ IQR = 3.

(iii) Median is the 50th item in the list which is a score of 7

(iv)



5.4.1 Solution (Exercise)

Answer 1

(i)

Score	Frequency	Cumulative Frequency
22	2	2
23	15	17
24	29	46
25	32	78
26	41	119
27	31	150
28	17	167
29	11	178
30	4	182
31	0	182
32	1	183

(ii) As there are 183 items of data;

$$\frac{183 + 1}{4} = 46$$

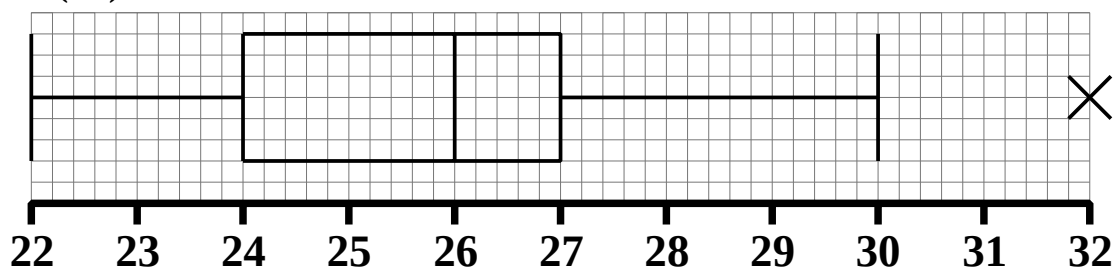
The lower quartile is the 46th item in the list which is a score of 24

The upper quartile is the 138th item in the list which is a score of 27

$\therefore \text{IQR} = 3$

(iii) Median is the 92nd item in the list which is a score of 26

(iv)



Answer 2**(i)**

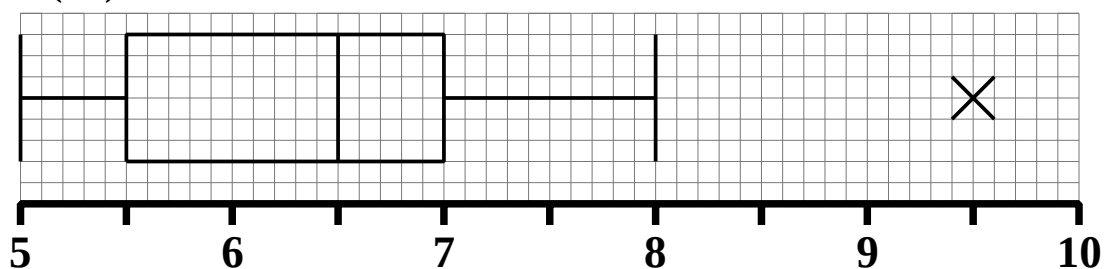
Shoe Size	Tally	Frequency	Cumulative Frequency
4		0	0
4½		0	0
5		1	1
5½		4	5
6		3	8
6½		3	11
7		4	15
7½		2	17
8		1	18
8½		0	18
9		0	18
9½		1	19
10		0	19

(ii) As there are 19 items of data;

$$\frac{19 + 1}{4} = 5$$

The lower quartile is the 5th item in the list which is a score of 5½The upper quartile is the 15th item in the list which is a score of 7

$$\therefore \text{IQR} = 1\frac{1}{2}$$

Median is the 10th item in the list which is a score of 6½**(iii)**

Answer 3

(i) 65% is the mode

(ii) Range is 50%

(iii)

Test Score (%)	Frequency	Cumulative Frequency
50	5	5
55	9	14
60	14	28
65	29	57
70	21	78
75	11	89
80	10	99
85	9	108
90	6	114
95	0	114
100	1	115

As there are 115 items of data;

$$\frac{115 + 1}{4} = 29$$

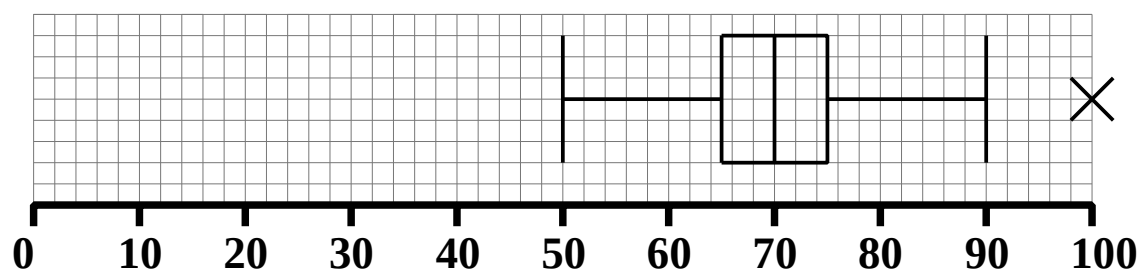
The lower quartile is the 29th item in the list which is a score of 65%

The upper quartile is the 87th item in the list which is a score of 75%

∴ IQR = 10%

Median is the 58th item in the list which is a score of 70%

(iv)



This document is a part of a **Mathematics Community Outreach Project** initiated by Shrewsbury School

It may be freely duplicated and distributed, unaltered, for non-profit educational use

In October 2020, Shrewsbury School was voted "**Independent School of the Year 2020**"

© 2025 Number Wonder

Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com