

2.2) Other measures of location

Worked example

Estimate the median:

Score, x	Frequency
$0 \leq x < 1$	3
$1 \leq x < 2$	2
$2 \leq x < 4$	1
$4 \leq x < 9.5$	1
$9.5 \leq x < 10$	4

Your turn

Estimate the median:

Score, x	Frequency
$0 < x \leq 1$	11
$1 < x \leq 3$	4
$3 < x \leq 6$	2
$6 < x \leq 6.5$	2
$6.5 < x \leq 10$	8

2.25

Worked example

Times, x , have been rounded to the nearest minute. Estimate the median:

Time, x	Frequency
0 – 2	5
3 – 5	2
6 – 10	3

Your turn

Times, x , have been rounded to the nearest minute. Estimate the median:

Time, x	Frequency
0 – 3	7
4 – 8	11
9 – 10	2

4.86 (3 sf)

Worked example

Estimate the median:

Height (m)	Frequency
$0.55 \leq h < 0.6$	33
$0.6 \leq h < 0.65$	54
$0.65 \leq h < 0.7$	15
$0.7 \leq h < 0.75$	30
$0.75 \leq h < 0.8$	18

Your turn

Estimate the median:

Height (m)	Frequency
$0.55 \leq h < 0.6$	55
$0.6 \leq h < 0.65$	45
$0.65 \leq h < 0.7$	30
$0.7 \leq h < 0.75$	15
$0.75 \leq h < 0.8$	5

0.62 m (2 dp)

Worked example

Find the lower quartile:

2, 3, 7, 9, 1, 8, 6, 3, 0, 1, 9

Your turn

Find the lower quartile:

3, 2, 5, 9, 5, 1, 7, 0, 2

2

Worked example

Find the upper quartile:

2, 3, 7, 9, 1, 8, 6, 3, 0, 1, 9

Your turn

Find the upper quartile:

3, 2, 5, 9, 5, 1, 7, 0, 2

5

Worked example

Find the lower quartile:

2, 3, 7, 9, 1, 8, 6, 3, 0, 1, 9, 12

Your turn

Find the lower quartile:

3, 2, 5, 9, 5, 1, 7, 0

1.5

Worked example

Find the upper quartile:

2, 3, 7, 9, 1, 8, 6, 3, 0, 1, 9, 12

Your turn

Find the upper quartile:

3, 2, 5, 9, 5, 1, 7, 0

6

Worked example

Estimate the lower quartile:

Score, x	Frequency
$0 \leq x < 1$	3
$1 \leq x < 2$	2
$2 \leq x < 4$	1
$4 \leq x < 9.5$	1
$9.5 \leq x < 10$	4

Your turn

Estimate the lower quartile:

Score, x	Frequency
$0 < x \leq 1$	11
$1 < x \leq 3$	4
$3 < x \leq 6$	2
$6 < x \leq 6.5$	2
$6.5 < x \leq 10$	8

0.61 (2 sf)

Worked example

Estimate the upper quartile:

Score, x	Frequency
$0 \leq x < 1$	3
$1 \leq x < 2$	2
$2 \leq x < 4$	1
$4 \leq x < 9.5$	1
$9.5 \leq x < 10$	4

Your turn

Estimate the upper quartile:

Score, x	Frequency
$0 < x \leq 1$	11
$1 < x \leq 3$	4
$3 < x \leq 6$	2
$6 < x \leq 6.5$	2
$6.5 < x \leq 10$	8

7.05 (2 sf)

Worked example

Times, x , have been rounded to the nearest minute. Estimate the lower quartile:

Time, x	Frequency
0 – 2	5
3 – 5	2
6 – 10	3

Your turn

Times, x , have been rounded to the nearest minute. Estimate the lower quartile:

Time, x	Frequency
0 – 3	7
4 – 8	11
9 – 10	2

2.5

Worked example

Times, x , have been rounded to the nearest minute. Estimate the upper quartile:

Time, x	Frequency
0 – 2	5
3 – 5	2
6 – 10	3

Your turn

Times, x , have been rounded to the nearest minute. Estimate the upper quartile:

Time, x	Frequency
0 – 3	7
4 – 8	11
9 – 10	2

5.72 (3 sf)

Worked example

Estimate the 27th percentile:

Score, x	Frequency
$0 \leq x < 1$	3
$1 \leq x < 2$	2
$2 \leq x < 4$	1
$4 \leq x < 9.5$	1
$9.5 \leq x < 10$	4

Your turn

Estimate the 72nd percentile:

Score, x	Frequency
$0 < x \leq 1$	11
$1 < x \leq 3$	4
$3 < x \leq 6$	2
$6 < x \leq 6.5$	2
$6.5 < x \leq 10$	8

6.6925

Worked example

Times, x , have been rounded to the nearest minute. Estimate the 63rd percentile:

Time, x	Frequency
0 – 2	5
3 – 5	2
6 – 10	3

Your turn

Times, x , have been rounded to the nearest minute. Estimate the 36th percentile:

Time, x	Frequency
0 – 3	7
4 – 8	11
9 – 10	2

3.59