Statistics

Mean $\bar{x}$: Average value

Standard deviation σ: The dispersion of the set of data

Variance σ^2

GDC skills

Casio

Menu → 2 Stat → put x in List 1 and put frequency in List 2 → F6 → F2 CAL → F1 1VAR

Check SET!!

For 1Var, frequency is 1	
1Var XList	List1
1Var Freq	**1**
2Var XList	List1
2Var YList	List2
2Var Freq	1

For 1Var, frequency is List 2	
1Var XList	List1
1Var Freq	**List2**
2Var XList	List1
2Var YList	List2
2Var Freq	1

TI 84

STAT → 1:Edit → put x in List 1 and put frequency in List 2 → STAT → CALC → 1–Var Test

T-nspire

1New document → 4: Add Lists & Spreedsheet → Name A as x and B as fre → Menu → 4: Statistics → 1: Stat Calculations → 1: One–Variable Statistics

Find the mean, standard deviation and variance of the following sets of data.

(a) 3, 4, 6, 5, 2, 1, 9, 2, 1, 9, 5, 6, 7, 2, 8

(b)

x	38	42	45	49	50	55	63	83	94
Frequency	4	5	2	1	9	12	8	5	4

(c)

Age	Frequency
20 – 25	12
25 – 30	24
30 – 35	32
35 – 40	52
40 – 45	12
45 – 50	33
50 – 55	15

Mode: The value that occurs most often

Lower quartile Q_1: The middle value of the lower half

Median Q_2: The middle value when the data set is ordered low to high. $\left(\frac{N+1}{2}\right)$

Upper quartile Q_3: The middle value of the upper half

Range: Max – Min

Interquartile range (IQR) = $Q_3 - Q_1$

The upper boundary = Q_3 +1.5 x IQR

The lower boundary = Q_1 – 1.5 x IQR

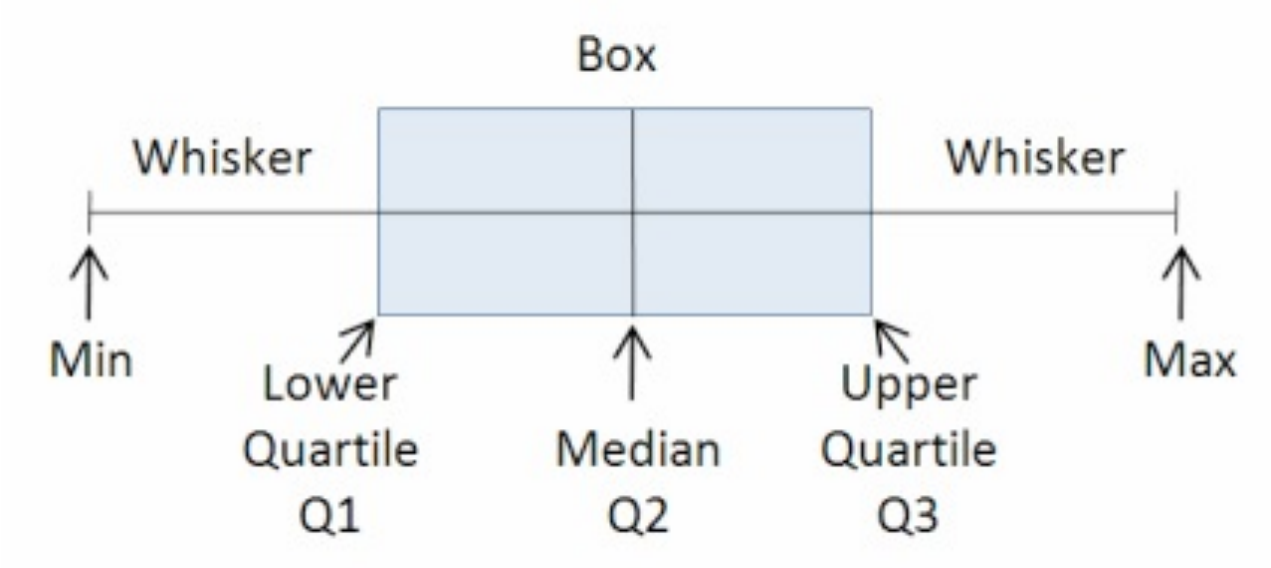
Find the mode, median, Q_1, Q_3, interquartile range and range of the following sets of data.

(a) 3, 5, 1, 2, 6, 7, 9, 3, 9, 4, 7, 8, 7

(b)

x	33	34	35	36	37	38	39
Frequency	1	5	7	13	12	8	1

Box and whisker plot



Every part is 25% of the total.

1.

(a) Find median

(b) Find median, Q_1 and Q_3.

(c) Find IQR and range.

2.

(a) Find median

(b) Find median, Q_1 and Q_3.

(c) Find IQR and range.

Exercise

1. A tetrahedral (four-sided) die has written on it the numbers 1, 2, 3 and 4. The die is rolled many times and the scores are noted. The table below shows the resulting frequency distribution.

Score	**1**	**2**	**3**	**4**
Frequency	18	x	y	22

The die was rolled a total of 100 times.

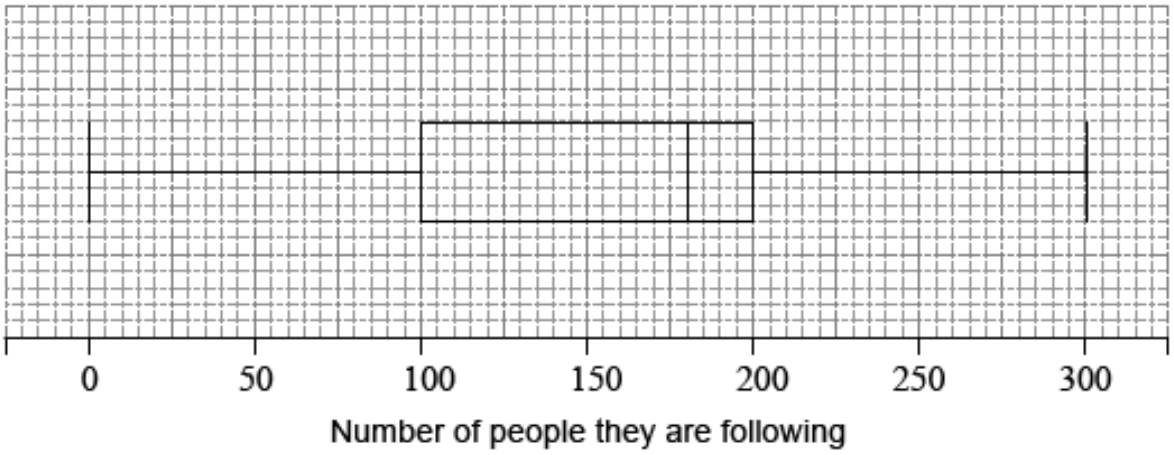
(a) Write down an equation, in terms of x and y, for the total number of times the die was rolled.

The mean score is 2.71.

(b) Using the mean score, write down a second equation in terms of x and y.

(c) Find the value of x and of y.

2. In a high school, 160 students completed a questionnaire which asked for the number of people they are following on a social media website. The results were recorded in the following box-and-whisker diagram.



(a) Write down the median.

The following incomplete table shows the distribution of the responses from these 160 students.

Number of people they are following (x)	Number of high school students
$0 \leq x \leq 50$	4
$50 < x \leq 100$	
$100 < x \leq 150$	34
$150 < x \leq 200$	46
$200 < x \leq 250$	
$250 < x \leq 300$	16

(b) Complete the table

(c) (i) Write down the mid-interval value for the $100 \leq x \leq 150$ group.

(This question continues on the following page.)

(ii) Using the table, calculate an estimate for the mean number of people being followed on the social media website by these 160 students.

3. A classes of 15 students were asked how many pencils they bring to class. The following results were recorded:

5, 7, 4, 5, 6, 7, 7, 4, 6, 5, 4, 6, 7, 2, 11

(a) For these results, write down
(i) the median;
(ii) the mode.

The lower and upper quartiles of these results are 4 and 7, respectively.

(b) Draw a box-and-whisker diagram to represent these results.