

Averages from lists of data

New employees are required to be fitted with Safety Boots.

The new employees at the factory this month have the following boot sizes:

10	8	9	8	9	12	11	8	9
7	6	8	10	10	10	9	9	8

To find the mean:

Add _____ and then divide by _____ = ____ / ____ = ____

To find the mode: The mode is _____

To find the median: Put the data in order,

Count how many values, call this n. Find half of n. (n/2)

If n/2 is a whole number, add half. Find this position in the list.

If n/2 is not a whole number, round up. Find this position in the list.

New employees also need fitting with safety trousers. These are the waist measurements (in cm) of the new employees.

77	81	93	87	84	99	81
90	88	91	85	87	86	89

Find the mean, median and mode waist sizes.

(You may want to put them in a stem and leaf diagram first).

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Spread from lists of data

New employees are required to be fitted with Safety Boots.

The new employees at the factory this month have the following boot sizes:

10	8	9	8	9	12	11	8	9
7	6	8	10	10	10	9	9	8

To find the Range:

_____ subtract _____ = _____ - _____ =

To find the Interquartile Range:

_____ subtract _____ = _____ - _____ = _____

To find the Lower quartile: Put the data in order,

Count how many values, call this n. Find quarter of n. ($n/4$)

If $n/4$ is a whole number, add half. Find this position in the list.

If $n/4$ is not a whole number, round up. Find this position in the list.

To find the Upper quartile: Put the data in order,

Count how many values, call this n. Find three quarters of n. ($3n/4$)

If $3n/4$ is a whole number, add half. Find this position in the list.

If $3n/4$ is not a whole number, round up. Find this position in the list.

New employees also need fitting with safety trousers. These are the waist measurements (in cm) of the new employees.

77	81	93	87	84	99	81
90	88	91	85	87	86	89

Find the range and interquartile range of waist sizes.

(You may want to put them in a stem and leaf diagram first).

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To Draw a Histogram

The flow rate (in dm^3s^{-1}) was measured in a pipe at 60 times over the course of a day.

Flow	Frequency	
$30 \leq F < 50$	8	
$50 \leq F < 60$	9	
$60 \leq F < 65$	15	
$65 \leq F < 70$	18	
$70 \leq F < 80$	6	
$80 \leq F < 100$	4	

- 1) Calculate the _____ of each row (_____ - _____)
- 2) Calculate the _____ of each row (_____ \div _____)
- 3) Draw the Histogram _____ on x-axis, _____ on y-axis
- 4) No gaps, Labels, Scale, Pencil, Ruler...

The Temperature of waste water in a pipe was measured at 80 times over the course of a day.

Temperature	Frequency	
$40 \leq T < 50$	10	
$50 \leq T < 60$	14	
$60 \leq T < 65$	19	
$65 \leq T < 70$	26	
$70 \leq T < 80$	7	
$80 \leq T < 110$	4	

Draw a Histogram to represent these data.

To Draw a Box Plot

The flow rate (in dm^3s^{-1}) was measured in a pipe at 60 times over the course of a day.

Flow	Frequency	
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$30 \leq F < 50$	8	
$50 \leq F < 60$	9	
$60 \leq F < 65$	15	
$65 \leq F < 70$	18	
$70 \leq F < 80$	6	
$80 \leq F < 100$	4	

The maximum recorded flow rate was $98 \text{ dm}^3\text{s}^{-1}$ and the minimum was $32 \text{ dm}^3\text{s}^{-1}$

- 1) Calculate the _____ of each row
- 2) Calculate the Lower Quartile...
- 3) Calculate the Median...
- 4) Calculate the Upper Quartile...
- 5) The box plot shows Minimum, LQ, Median, UQ and Maximum values.

The Temperature (in $^{\circ}\text{C}$) of waste water in a pipe was measured at 80 times over the course of a day.

Temperature	Frequency	
$40 \leq T < 50$	10	
$50 \leq T < 60$	14	
$60 \leq T < 65$	19	
$65 \leq T < 70$	26	
$70 \leq T < 80$	7	
$80 \leq T < 110$	4	

The minimum recorded temperature was 42°C and the maximum recorded temperature was 108°C .

Draw a Box plot to represent these data.

Comparing sets of Data

I measured the resistance of 30 resistors (in Ω) and recorded the results:

55.6	53.1	52	50.4	53.5
51.6	55.5	46.4	60.8	56.6
47.1	57.9	49.3	57.8	54.6
45.4	47.8	50.4	48.6	48.8
49.1	64.2	50.7	49.4	56.9
39.1	50.3	50	46.2	55.2

- Summarise the data in a grouped frequency chart. (Pick your own groups!)

Resistance	Frequency	

- Use your grouped data to draw a histogram to show the shape of the distribution.
- Use your grouped data to estimate the mean and median of the data
- Use your grouped data to estimate the Quartiles and interquartile range of the data.
- Draw a diagram that summarises this information.

I measured the resistance of a second batch of resistors

49.1	45	42.8	54.2	48
60.9	44.7	59.2	50	45.1
59.7	52.1	52.2	52.5	47.9
59.9	30.5	44.9	46.1	51.5
58.4	51.2	42.4	54.4	36.6

- Repeat the summary statistics a) to d) for this batch of resistors.

Resistance	Frequency	

- Which batch has a mean closest to the stated mean of 50 Ω ?
- Which batch has the most consistent resistance?

