Mode, Median, Mean and Range
Videos 50, 53, 56, 57 on Corbettmaths
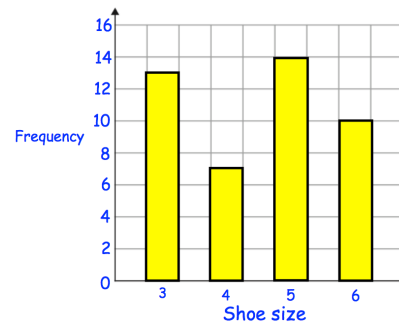
Examples

Workout: The Mode

Click here   Scan here

Question 1:   Work out the mode for the each of the following

(a) 5, 6, 6, 7, 8, 10

(b) 1, 1, 1, 4, 6, 8, 12

(c) 5, 5, 7, 7, 7, 8, 8, 9

(d) 5, 7, 3, 5, 8, 9, 10, 2

(e) 8, 3, 3, 4, 6, 8, 13, 3, 18

(f) 12, 14, 15, 17, 15

(g) 2.3, 2.6, 2.8, 2.7, 2.8, 2.7, 2.4, 2.3, 2.1, 2.3

(h) −2, −1, 5, 8, −2, 2, −1, 9, −1, 1, 2, −1

Question 2:   The bar chart shows the shoe sizes of a group of students.

(a)   How many students in total are there?

(b)   What is the modal shoe size?

Question 3:   Work out the mode for the each of the following

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

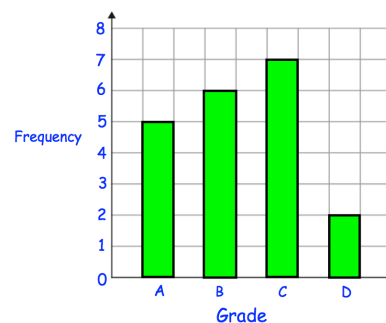(b)   8, 9, 7, 3, 4, 7, 9, 3, 4, 5, 1, 2, 2, 1, 3, 0, 0, 8, 1, 4, 7, 8, 6, 6, 3, 3, 3, 1, 3, 3, 5

Question 4:   The tally chart shows the favourite sport of the students in a class.

(a)   What is the modal sport?

(b)   How many students are in the class?

(c)   How many more students liked football than rugby?

Sport	Tally
Rugby	IIII
Football	IIII IIII I
Hockey	IIII IIII II
Cricket	III

Question 5:   Mrs Green gives her class a test. The results are shown in the bar chart below.

(a)   What is the modal grade?

(b)   How many students sat the test?

A grade C or above is a "pass."

(c)   What fraction of the students passed the test?

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Examples

Workout: The Median

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Question 1:   Work out the median for the each of the following

(a) 5, 1, 4, 6, 8

(b) 9, 1, 3, 6, 7, 8, 9

(c) 6, 4, 7, 1, 3, 8, 1, 10

(d) 7, 3, 8, 9, 6, 5

(e) 9, 8, 6, 6, 6, 7, 1, 2, 6, 8

(f) −4, 5, −7, −1, 2, 0, 9

(g) 20, 30, 10, 20, 40, 50, 60, 10, 80, 30

(h) 49, 34, 12, 10, 53, 20, 65, 34, 90, 100, 33

(i) 6.2, 6.8, 6.6, 7.2, 6.4, 7.4, 5.8

(j) 124, 53, 39, 230, 155, 180

Question 2:   Shown are the ages and weights of 5 dogs.

	Fido	Lucky	Toto	Barney	Tess
Age	4	12	7	9	1
Weight	14kg	9kg	30kg	16kg	8kg

(a)   Which dog has the median age?

(b)   Which dog has the median weight?

Question 3:   The height of some footballers are listed below:

1.81m,   1.78m,   1.88m,   1.79m,   1.86m,   1.85m,   1.78m,   1.93m

(a)   Work out the median height

(b)   What is the modal height?

Question 4:   Write down five numbers with a median of 7

Question 5:   Write down eight numbers with a median of 10

Question 6:   Write down four different numbers with a median of 4.5

Question 7:   Write down six different numbers with a median of 0

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Examples

Workout: The Mean

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Question 1:   Find the mean for each of the sets of data below

(a)   4, 9, 7, 10, 5

(b)   2, 8, 6, 3, 12, 7, 4

(c)   3, 2, 1, 3, 2, 2, 1, 3, 1, 2, 3, 2, 1

(d)   1, 8, 7, 5, 6, 4, 7, 6

(e)   20, 30, 24, 32

(f)   12, 8, 14, 5, 1, 3, 0, 8, 10, 11

(g)   9, −3, −6, 5, 0

(h)   1.4, 2.8, 2.4, 2.5, 2.8, 3.1, 1.1

Question 2:   A basketball team plays 8 matches.
The number of points they score in each match are:

62, 68, 67, 79, 82, 50, 74, 62

(a)   Work out the mean number of points scored

(b)   Write down the modal number of points scored

(c)   Write down the median number of points scored

Question 3:   Mr Holland gives his class a test. The results are:
34%, 44%, 75%, 21%, 98%, 86%, 71%, 76%, 63%, 55%

(a)   Work out the mean mark

(b)   Work out the median mark

(c)   How many students scored above the mean mark?

Question 4:   Five houses on a street are sold in 2016. They sell for
£175,000   £184,000   £150,000   £201,000   £191,000

Calculate the mean price.

Question 5:   The mean of four numbers is 10. Three of the numbers are 9, 11 and 7.
Work out the fourth number.

Question 6:   The mean of six numbers is 5. Five of the numbers are 6, 6, 5, 3 and 1.
Work out the sixth number.

Question 7:   The mean of five numbers is 8.2. Four of the numbers are 8, 10, 12 and 10.
Work out the fifth number.

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Examples

Workout: The Range

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Question 1:   Find the range for each of the following

(a)   5, 9, 1, 5, 7, 4, 3   (b)   6, 7, 10, 8, 9, 9   (c) 21, 15, 19, 24, 30, 26

(d)   210, 250, 260, 180, 240   (e)   6.2, 7.3, 8.8, 1.5, 4.1 (f) 3, 1, 2, 1, 3, 4, 5, 0, 1

(g)   −5, 1, 3, 6, −8, 1   (h)   −6, −10, −2, −9   (i) 0, 7, 9, −21, 10, −4

(j)   7, 9, −2, 13, 9, 8, 20, −8, 1   (k) −10, −6, −15, −9, −8, −7, 8, −3

Question 2:   The range for a list of numbers is 7. The smallest value is 4.
               What is the largest value in the list?

Question 3:   The range for a list of numbers is 8. The largest value is 13.
               What is the smallest value in the list?

Question 4:   The range for a list of numbers is 1. The largest value is 4.
               What is the smallest value in the list?

Question 5:   The range for a list of numbers is 27. The smallest value is 87.
               What is the largest value in the list?

Question 6:   The number of points that Randalstown Rugby Club scored in eight matches are
               24, 17, 19, 35, 9, 43, 15, 30.

(a)   Work out the range of the number of points scored.

(b)   Work out the median of the number of points scored.

Question 7:   The table shows the midday temperature over five days.
               Each temperature is in degrees celsius.

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Temperature	-4	1	-6	1	-2

(a)   Work out the range of the temperatures.
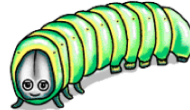
(b)   Work out the mean temperature.

Apply

Question 1: The length of nine caterpillars are listed below

9cm   4cm   8cm   10cm   7cm   5cm   13cm   10cm   6cm

(a)   Find the mode
(b)   Find the median
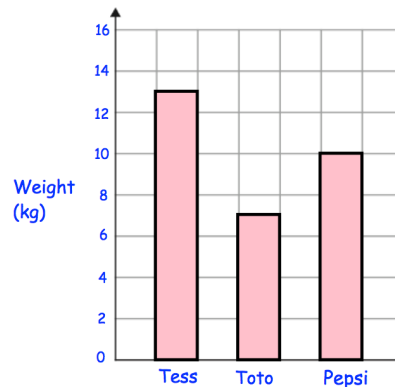(c)   Find the mean
(d)   Find the range

Question 2: James plays six games of darts.
His scores are 120, 71, 80, 14, 90, 117

Should James use the mean or the median to give him the highest average score?

Question 3: Shown are the weights of 3 puppies.

(a) Work out range of the weights

(b) Work out the median weight

(c) Work out the mean weight

Question 4: The amount of water in some containers are:

2 litres,   330ml,   0.08 litres,   0.7 litres, 75ml,   5000ml,   0.15 litres

(a) Work out the median   (b) Find the range

Question 5: The median height of 11 footballers is 1.85m.
Only one footballer has a height of 1.85m
How many footballers have a height under 1.85m?

Question 6: Write down seven numbers that have a range of 10 and a mean of 12.

Question 7: Write down six numbers that have a median of 8, a mean of 9 and a range of 13

Question 8: Five numbers have a range of 14.
Four of the numbers are 20, 22, 31 and 25.
Work out the two different possible values for the fifth number.

Question 9: Belfast Giants have played 5 matches and the mean number of goals scored is 3
When they play the 6th match, the mean increases to 4.

How many goals were scored in the 6th match?

Question 10: James is a car salesman.
He has a target of selling 5 cars a day from Monday to Friday.
Over Monday to Thursday, he has sold a mean of 6 cars a day.
How many cars must he sell on Friday to meet his target?

Question 11: A teacher surveys a group of students.
He asks how much pocket money they receive each week. They respond
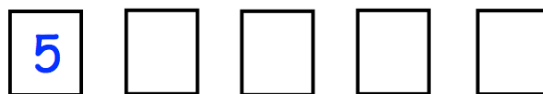
£5   £8   £4   £50   £6   £8   £7.50   £10   £8   £7

(a)   Work out the median
(b)   Work out the mean
(c)   Which average, the median or the mean, is most suitable for this data?

Question 12: A set of six numbers have a median of 9.
All of the numbers are even.
The range of the numbers is 8.
The mode of the numbers is 6.

Write down a possible set of six numbers.

Question 13: Shown below are five cards which are arranged in order from smallest to largest

5 ☐ ☐ ☐ ☐

The range of the cards is 6.
The median of the cards is 7.
The mean of the cards is 8.

Work out the 4 missing numbers.

Answers

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