

Averages & Range

Discrete & Continuous Data / Mean, Median & Mode / Calculations with the Mean / Averages from Tables / Averages from Grouped Data / Range & Interquartile Range / Comparing Data Sets

Easy (4 questions)	/20
Medium (12 questions)	/48
Hard (12 questions)	/49
Total Marks	/117

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Easy Questions

1 The students in Class A and in Class B take the same examination.

- The lowest score in Class A is 39
- The range of scores for Class A is 57
- The lowest score in Class B is 33
- The range of scores for Class B is 60

Find the range of scores for all the students in both classes.

(3 marks)

2 Roberto records the value of each of the coins he has at home. The table shows the results.

Value (cents)	1	2	5	10	20	50
Frequency	3	1	3	2	4	2

- i) Find the range.

..... cents [1]
- ii) Find the mode.

..... cents [1]
- iii) Find the median.

..... cents [1]
- iv) Work out the total value of Roberto's coins.

..... cents [2]
- v) Work out the mean.

..... cents [1]

(6 marks)

- 3 The test scores of 14 students are shown below.

21	21	23	26	25	21	22	20	21	23	23	27	24	21
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Find the range, mode, median and mean of the test scores.

Range =

Mode =

Median =

Mean =

(6 marks)

- 4 A teacher records the number of days each of the 24 students in her class are absent.
The frequency table shows the results.

Number of days	0	1	2	3	4	5
Frequency	10	8	3	2	0	1

Find the mode, the median and the mean.

Mode =

Median =

Mean =

(5 marks)

Medium Questions

- 1 The table shows the marks scored by 40 students in a test.

Mark	5	6	7	8	9	10
Frequency	8	5	11	7	5	4

Calculate the mean mark.

(3 marks)

- 2 (a) 40 people were asked how many times they visited the cinema in one month.
The table shows the results.

Number of cinema visits	0	1	2	3	4	5	6	7
Frequency	5	5	6	6	7	3	6	2

Find the mode.

(1 mark)

- (b) Calculate the mean.

(3 marks)

- 3 The heights, h metres, of the 120 boys in an athletics club are recorded.
The table shows information about the heights of the boys.

Height (h metres)	$1.3 < h \leq 1.4$	$1.4 < h \leq 1.5$	$1.5 < h \leq 1.6$	$1.6 < h \leq 1.7$	$1.7 < h \leq 1.8$	$1.8 < h \leq 1.9$
Frequency	7	18	30	24	27	14

Calculate an estimate of the mean height.

..... m

(4 marks)

- 4 The speed, v km/h, of each of 200 cars passing a building is measured. The table shows the results.

Speed (v km/h)	$0 < v \leq 20$	$20 < v \leq 40$	$40 < v \leq 45$	$45 < v \leq 50$	$50 < v \leq 60$	$60 < v \leq 80$
Frequency	16	34	62	58	26	4

Calculate an estimate of the mean.

..... km/h

(4 marks)

- 5 The table shows the marks scored by some students in a test.

Mark	5	6	7	8	9	10
Frequency	8	2	12	2	0	1

Calculate the mean mark.

(3 marks)

- 6 The table shows the time, t seconds, taken by each of 120 boys to solve a puzzle.

Time (t seconds)	$20 < t \leq 30$	$30 < t \leq 35$	$35 < t \leq 40$	$40 < t \leq 60$	$60 < t \leq 100$
Frequency	38	27	21	16	18

Calculate an estimate of the mean time.

..... s

(4 marks)

- 7 20 students each record the mass, p grams, of their pencil case. The table below shows the results.

Mass (p grams)	$0 < p \leq 50$	$50 < p \leq 100$	$100 < p \leq 125$	$125 < p \leq 150$	$150 < p \leq 200$
Frequency	2	5	4	6	3

Calculate an estimate of the mean mass.

..... g

(4 marks)

- 8 A school nurse records the height, h cm, of each of 180 children. The table shows the information.

Height (h cm)	$60 < h \leq 70$	$70 < h \leq 90$	$90 < h \leq 100$	$100 < h \leq 110$	$110 < h \leq 115$	$115 < h \leq 125$
Frequency	8	26	35	67	28	16

Calculate an estimate of the mean.

Give your answer correct to 1 decimal place.

..... cm

(4 marks)

- 9 The table shows the amount of time, T minutes, 120 people each spend in a supermarket one Saturday.

Time (T minutes)	Number of people
$10 < T \leq 30$	16
$30 < T \leq 40$	18
$40 < T \leq 45$	22
$45 < T \leq 50$	40
$50 < T \leq 60$	21
$60 < T \leq 70$	3

Use the midpoints of the intervals to calculate an estimate of the mean.

..... min

(4 marks)

10 A factory recycles metal.

The mass, x tonnes, of metal is measured each week.

The table shows the results for 52 weeks.

Mass (x tonnes)	$100 < x \leq 200$	$200 < x \leq 250$	$250 < x \leq 300$	$300 < x \leq 500$
Frequency	8	20	12	12

Calculate an estimate of the mean.

..... tonnes

(4 marks)

11 (a) The time taken for each of 120 students to complete a cooking challenge is shown in the table.

Time (t minutes)	$20 < t \leq 25$	$25 < t \leq 30$	$30 < t \leq 35$	$35 < t \leq 40$	$40 < t \leq 45$
Frequency	44	32	28	12	4

Write down the modal time interval.

..... $< t \leq$

(1 mark)

(b) Write down the interval containing the median time.

..... $< t \leq$

(1 mark)

(c) Calculate an estimate of the mean time.

..... min

(4 marks)

12 The information below summarises data regarding the heights of plants, measured in centimetres.

Height, h cm	$0 < h \leq 10$	$10 < h \leq 20$	$20 < h \leq 30$	$30 < h \leq 50$
Frequency	2	18	62	38

Calculate an estimate of the mean height.

..... cm

(4 marks)

Hard Questions

- 1 The height, h cm, of each of 100 students is measured.
The table shows the results.

Height (h cm)	$100 < h \leq 150$	$150 < h \leq 160$	$160 < h \leq 165$	$165 < h \leq 185$
Frequency	7	30	41	22

Calculate an estimate of the mean.

..... cm

(4 marks)

- 2 The table shows information about the times, t seconds, taken by each of 100 students to solve a puzzle.

Time (t s)	$0 < t \leq 10$	$10 < t \leq 15$	$15 < t \leq 20$	$20 < t \leq 40$	$40 < t \leq 75$
Frequency	9	18	22	30	21

Calculate an estimate of the mean time.

..... s

(4 marks)

- 3 The table shows the amount of money, $\$x$, given to a charity by each of 60 people.

Amount (\$ x)	$0 < x \leq 20$	$20 < x \leq 25$	$25 < x \leq 35$	$35 < x \leq 50$	$50 < x \leq 100$
Frequency	21	16	6	10	7

Calculate an estimate of the mean.

\$

(4 marks)

- 4 Bob asked each of 40 friends how many minutes they took to get to work.
The table shows some information about his results.

Time taken (m minutes)	Frequency
$0 < m \leq 10$	3
$10 < m \leq 20$	8
$20 < m \leq 30$	11
$30 < m \leq 40$	9
$40 < m \leq 50$	9

Work out an estimate for the mean time taken.

(4 marks)

- 5 Sumeet records the times, in minutes, for 40 runners to finish a half marathon. Information about these times is shown in the table.

Time (t minutes)	Frequency
$60 < t \leq 90$	10
$90 < t \leq 120$	14
$120 < t \leq 150$	9
$150 < t \leq 180$	5
$180 < t \leq 210$	2

Calculate an estimate for the mean time.

(4 marks)

- 6 The frequency table shows the times, t minutes, each of 100 children spent exercising in one week.

Time (t minutes)	$0 < t \leq 60$	$60 < t \leq 100$	$100 < t \leq 160$	$160 < t \leq 220$	$220 < t \leq 320$
Frequency	41	24	23	8	4

Calculate an estimate of the mean time.

..... min

(4 marks)

- 7 200 students estimate the total area, $A \text{ m}^2$, of the windows in the classroom.
The table shows their results.

Area ($A \text{ m}^2$)	$20 < A \leq 60$	$60 < A \leq 100$	$100 < A \leq 150$	$150 < A \leq 250$
Frequency	32	64	80	24

Calculate an estimate of the mean.
You must show all your working.

..... m^2

(4 marks)

- 8 During one year the midday temperatures, $t^\circ\text{C}$, in Zedford were recorded.
The table shows the results.

Temperature ($t^\circ\text{C}$)	$0 < t \leq 10$	$10 < t \leq 15$	$15 < t \leq 20$	$20 < t \leq 25$	$25 < t \leq 35$
Number of days	50	85	100	120	10

Calculate an estimate of the mean.

..... $^\circ\text{C}$

(4 marks)

- 9 100 students were each asked how much money, $\$m$, they spent in one week.
The frequency table shows the results.

Amount (\$ m)	$0 < m \leq 5$	$5 < m \leq 10$	$10 < m \leq 20$	$20 < m \leq 30$	$30 < m \leq 50$
Frequency	16	38	30	9	7

Calculate an estimate of the mean.

\$

(4 marks)

- 10** The frequency table shows information about the number of books read by some students in a reading marathon.

Number of books read	1	2	3	4	5	6	7	8
Frequency	2	2	16	10	9	4	x	2

- i) The mean number of books read is 4.28.

Find the value of x .

$x = \dots\dots\dots$ [3]

- ii) Write down the mode.

[1]

- iii) Write down the median.

[1]

(5 marks)

- 11 Three sizes of eggs are sold in a shop.
The table shows the number of eggs of each size sold in one day.

Size	Small	Medium	Large
Mass (m grams)	$46 < m \leq 52$	$52 < m \leq 62$	$62 < m \leq 80$
Number of eggs sold	78	180	162

Calculate an estimate of the mean mass.

..... g

(4 marks)

- 12 The frequency table shows information about the time, m minutes, that each of 160 people spend in a library.

Time (m minutes)	$0 < m \leq 10$	$10 < m \leq 40$	$40 < m \leq 60$	$60 < m \leq 90$	$90 < m \leq 100$	$100 < m \leq 120$
Frequency	3	39	43	55	11	9

Calculate an estimate of the mean time spent in the library.

..... min

(4 marks)