Bishops Online Tutoring

Education Consultancy

Edexcel GCSE Mathematics
FREQUENCY TABLES

Materials Required:

- Pen
- HB Pencil
- Ruler (in centimetres and millimetres)
- Protractor
- Compass

Instructions:

- Use a black ink pen to answer all questions
- Fill your name in the section below
- Answer the questions in the spaces provided
- Show your working out for all answers

Information:

- The marks allocated for each question are displayed within brackets – utilise this information to gauge the appropriate amount of time to dedicate to each question
- Questions marked with an asterisk (*) will assess your written communication; be careful of spelling, punctuation and grammar with these questions

Advice:

- Carefully read the question before attempting to answer it
- Be vary of time and try to answer every question
- If you have enough time in the end, go back and check your answers. A good way to check your answers is to retry the question with the hope of getting the same answer as before without looking at your working out from before

CALCULATOR ALLOWED

NAME:	

1. Amanda collected 20 leaves and wrote down their lengths, in cm.

Here are her results.

5 6 5 2 4 5 8 7 5 4

7 6 4 3 5 7 6 4 8 5

(a) Complete the frequency table to show Amanda's results.

Length in cm	Tally	Frequency
2	\	1
3	\	1
4	\\\\	4
5	~~||||~~ \	6
6	\\\	3
7	\\\	3
8	\\	2

(2)

→ highest frequency

(b) Write down the modal length ……5……cm **(1)**

(c) Work out the range. ……6……cm **(1)**

8 − 2 = 6

(4 marks)

2. Rosie had 10 boxes of drawing pins.

She counted the number of drawing pins in each box.

The table gives information about her results.

Number of drawing pins	Frequency	Number × freq
29	2	58
30	5	150
31	2	62
32	1	32
	10	302

Work out the mean number of drawing pins in a box.

302 ÷ 10 = 30.2 ……30.2……

(3 marks)

3. Andy did a survey of the number of cups of coffee some pupils in his school had drunk yesterday.

The frequency table shows his results.

Number of cups of coffee	Frequency	No. × freq
2	1	2
3	3	9
4	5	20
5	8	40
6	5	30

Total 101

(a) Work out the number of pupils that Andy asked. ..... 27 .....

(2)

(b) Work out the mean number of cups of coffee drunk. ..... 4.59 (2 d.p) .....

(3)

(5 marks)

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4. 20 students scored goals for the school hockey team last month.
The table gives information about the number of goals they scored.

Goals scored	Number of students	Goals × students
1	9	9
2	3	6
3	5	15
4	3	12

Total 42

(a) Write down the modal number of goals scored.

..... 1 .....

(1)

(b) Work out the range of the number of goals scored.

4 − 1 = 3

..... 3 .....

(1)

(c) Work out the mean number of goals scored.

42 ÷ 20 = 2.1

..... 2.1 .....

(3)

(5 marks)

5. 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	Mid Point	freq x mid
$0 < m \leq 10$	3	5	15
$10 < m \leq 20$	8	15	120
$20 < m \leq 30$	11	25	275
$30 < m \leq 40$	9	35	315
$40 < m \leq 50$	9	45	405
	40		1130

(a) Work out an estimate for the mean time taken.

$1130 \div 40 = 28.25$

28.25 ..... minutes **(4)**

b) State the modal class interval

Highest Frequency

$20 < m \leq 30$ ..... **(1)**

c) Find the group containing the median

$20 < m \leq 30$ ..... **(2)**

(7 marks)

6. The table shows information about the numbers of hours 40 children watched television one evening.

Number of hours (h)	Frequency	Mid	Mid x Freq
$0 \leqslant h < 1$	3	0.5	1.5
$1 \leqslant h < 2$	8	1.5	12
$2 \leqslant h < 3$	7	2.5	17.5
$3 \leqslant h < 4$	10	3.5	35
$4 \leqslant h < 5$	12	4.5	54
	40		120

(a) Find the class interval that contains the median.

$3 \leq h < 4$ ..... **(1)**

(b) Work out an estimate for the mean number of hours.

$120 \div 40$

3 ..... hours **(4)**

(5 marks)

7. 80 people work in Jenny's factory.
The table shows some information about the annual pay of these 80 workers.

Annual pay (£x)	Number of workers	Mid	mid x Freq
$10\,000 < x \leq 14\,000$	32	12000	384000
$14\,000 < x \leq 16\,000$	24	15000	360000
$16\,000 < x \leq 18\,000$	16	17000	272000
$18\,000 < x \leq 20\,000$	6	19000	114000
$20\,000 < x \leq 40\,000$	2	30000	60000
	80		1190000

(a) Write down the modal class interval.

Highest Frequency

$10000 < x \leq 14000$

(1)

(b) Find the class interval that contains the median.

80 workers → median between 40 and 41

32+24 = 56 (median in here)

$14000 < x \leq 16000$

(2)

(c) Work out an estimate for the mean annual pay.

1190000 ÷ 80

14,875

(3)

(d) Why is your answer to part (c) and estimate?

Since the individual pay amounts have been grouped, we don't know actual values and so use the midpoint of each group to estimate.

(1)

(7 marks)

8. Caleb measured the heights of 30 plants.
The table gives some information about the heights, h cm, of the plants.

Height (h cm) of plants	Frequency	Mid	fxm
$0 < h \leq 10$	2	5	10
$10 < h \leq 20$	8	15	120
$20 < h \leq 30$	9	25	225
$30 < h \leq 40$	7	35	245
$40 < h \leq 50$	4	45	180
	30		780

(a) Work out an estimate for the mean height of a plant.

780 ÷ 30

26

(3)

(b) Write down the modal class interval.

$20 < h \leq 30$

(1)

(c) Find the class interval that contains the median.

30 plants → median between 15 and 16

2 + 8 = 10

10 + 9 = 19 (median in here)

$20 < h \leq 30$

(2)

(d) Why is your answer to part (a) and estimate?

We don't know the actual plant heights as data is grouped.

(1)

(7 marks)

9. Marcus collected some pebbles.
He weighed each pebble.

The grouped frequency table gives some information about weights.

Weight (w grams)	Frequency	Mid	fxm
$50 \leq w < 60$	5	55	275
$60 \leq w < 70$	9	65	585
$70 \leq w < 80$	22	75	1650
$80 \leq w < 90$	27	85	2295
$90 \leq w < 100$	17	95	1615
	80		6420

(a) Work out an estimate for the mean weight of the pebbles.

6420 ÷ 80

80.25g

(3)

(b) Write down the modal class interval.

$80 \leq w < 90$

(1)

(c) Find the class interval that contains the median.

80 → median between 40 and 41

5 + 9 = 16
16 + 22 = 38
38 + 27 = 65 (median in here)

$80 \leq w < 90$

(2)

(d) Why is your answer to part (a) and estimate?

Data is grouped and so we don't know actual values.

(1)

(7 marks)