Schoolworkout Maths

GCSE Mathematics – Statistical diagrams and calculations: Assessment B

Your Name: **Tutor Group**:

End of GCSE target grade: **Grade achieved**:

Grade D objectives	☺	😐	☹
• I can calculate the mean, median and mode for a simple frequency distribution.			
• I can construct a stem-and-leaf diagram (ordered)			

1.   Some celebrities took part in a dancing competition.
      The marks awarded by one of the judges are shown in the frequency table.

Mark	Number of celebrities
4	2
5	1
6	5
7	4
8	2
9	1

   a) Write down how many celebrities are in the competition.

………………………   [1]

   b) Write down the median mark.

………………………   [1]

   c) Find the mean mark.

………………………   [2]

   d) Work out the range of marks.

………………………   [1]

2. A doctor is concerned about the number of people who miss appointments at his surgery.
Over a 16 week period, he records the number of people per week who miss appointments with him.
The figures he obtains are listed below:

26	32	43	19	23	27	30	35
22	36	41	28	37	18	47	51

Create an **ordered** stem-and-leaf table to show the data.
It has been started for you below.

$$\text{Key} \mid 1 \quad 9 \quad = \quad 19$$

```
1 | 8   9
2 |
3 |
4 |
5 |
```

[3]

Grade C objectives	☺	😐	☹
• I can find the mean for grouped data			
• I can find the median class and modal class for grouped data			
• I can use measures of average and range to compare distributions and make inferences			
• I can draw a frequency polygon.			
• I can use frequency polygons to compare distributions.			

3. The table gives information about the ages, in years, of 200 employees in a computer software company.

Age (t years)	Frequency
$16 < t \leq 20$	38
$20 < t \leq 30$	85
$30 < t \leq 40$	51
$40 < t \leq 50$	17
$50 < t \leq 60$	9

a) Work out an estimate of the mean age of the employees.

[4]

b) Write down the interval which contains the median.

[1]

4. Mrs Jones is interested in comparing the number of days of sickness her male and female employees have taken during the past year.

Here are the number of days of sickness for the male employees:

    1   5   3   0   0   2   9   12   5   6   4
    15   9   2   2   0   1   6

a) Work out the median and the range for the male employee data.
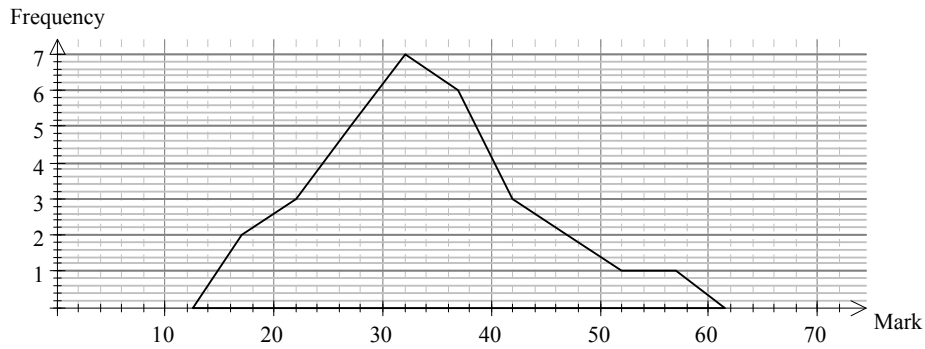
Median = ………………..

Range = ………………..   [3]

The median number of days of sickness for the female employees was 5 and the range of the days of sickness for the female employees was 11.

b) Compare the number of days of sickness taken by Mrs Jones' male and female employees.

……..

……..

[2]

5. The frequency polygon shows the marks (out of 60) gained by a class of students in a non-calculator mathematics examination.

Frequency

The table below shows the marks obtained by the same class in the calculator paper.

Mark (out of 60)	Number of students
20-24	2
25-29	4
30-34	6
35-39	7
40-44	5
45-49	4
50-54	2

[2]

a) Draw a frequency polygon to show the marks gained by the class on the calculator paper.
Draw your frequency polygon on the axes above.

b) Compare the marks obtained by the students in the non-calculator and calculator papers.

………..

[2]

………..

………..

………..

Grade B objectives	☺	☺	☹
• I can find the lower quartile, upper quartile and interquartile range for a set of data.			
• I can draw and interpret box plots. I can use box plots to compare sets of data.			
• I can construct and interpret back-to-back stem-and-leaf diagrams.			
• I know how to complete a cumulative frequency table and can draw a cumulative frequency graphs.			
• I can use a cumulative frequency graph to find estimates for the lower quartile, median and upper quartile from a cumulative frequency graph.			

6. The IQs of a group of children are as follows:
    102, 116, 93, 81, 109, 102, 97, 105, 95, 83, 98, 104, 103, 89, 107.

    a) Find the interquartile range for the IQs of these children.

    Interquartile range = ……………………
    [3]

    b) Display the IQs on a box plot.
    Use the grid below.

    [4]
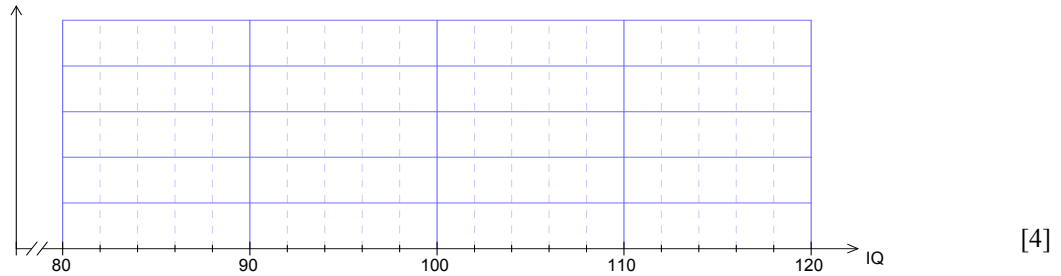
7. The stem-and-leaf diagram shows the weights of twelve week old babies that are either bottle or breast fed.

Bottle-fed babies							stem	Breast-fed babies						
							4	6	8					
		8	7	6	3		5	3	5	6	7	7	9	
9	9	8	4	4	3	2	6	0	2	4	5	6	7	8
	8	6	5	2	2	1	7	0	1	2	4			
						1	8							

    Key: 4 | 6 = 4.6 kg.

    a) Find the median of the weights for the breast-fed babies.
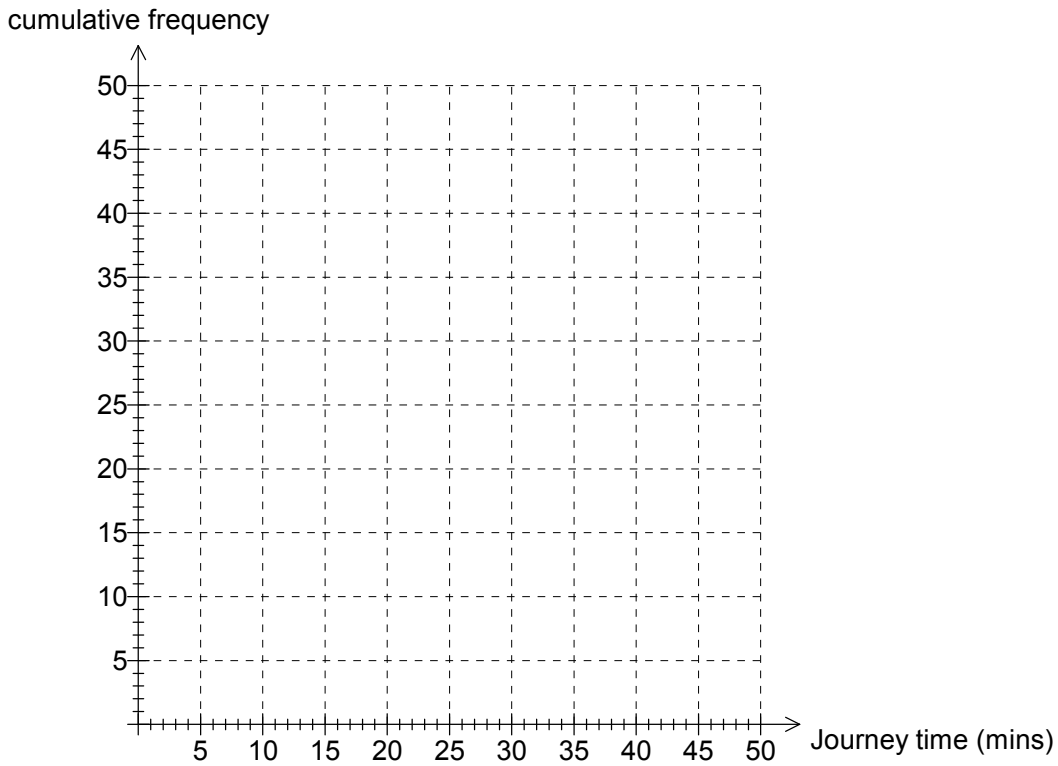
    Median = …………………kg   [2]

    b) Find the median of the weights for the bottle-fed babies.

    Median = …………………kg   [1]

8. A commuter records his journey times (in minutes) to work over a ten week period.
The table shows his results.

Journey time, t (minutes)	Frequency
$20 \leq t < 25$	4
$25 \leq t < 30$	13
$30 \leq t < 35$	21
$35 \leq t < 40$	9
$40 \leq t < 45$	3

Use the grid below to draw a cumulative frequency graph to show his journey times.

cumulative frequency

b) Use your graph to estimate the lower quartile for the journey times.

Lower quartile = …………………mins

Use your graph to estimate the **percentage** of journeys that take **more** than 33 minutes.

…………………..%

Teacher feedback:

In order to get to the next grade (or in order to improve the quality of your work) you should…

The following aspect of your work was particularly good …