



GCSE **Statistics**

8382/1F Paper 1 Foundation

Report on the Examination

8382
June 2024

Version: 1.0

Further copies of this Report are available from aqa.org.uk

AQA retains the copyright on all its publications. However, registered schools/colleges for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

General

The majority of students showed a good understanding of most statistical concepts with students scoring reasonably well throughout the paper. The mean mark was 59%. As on previous occasions there were a number of students who appeared to lack a calculator. As a consequence, a number of marks were lost due to arithmetical errors.

Topics that were done well included:

- Composite bar charts
- Population pyramids
- Reading from tables

Topics which students found difficult included:

- Calculating quartiles
- Drawing box plots
- Comparing statistically median and interquartile range
- Explaining the suitability of the different averages

Question 1

This was well answered with just under 90% giving the correct answer.

Question 2

This multiple-choice question was well answered with just over 80% scoring the mark.

Question 3

Students struggled with this question with only one quarter giving the right answer. The vast majority of students did not realise that stratification was not a source of data.

Question 4

This multi-choice question was only correctly answered by 30% of students.

Question 5a

Nearly all students scored on this part. Most realised that they were looking for the two colours that had the same number of discs.

Question 5b

Just over half of students scored on this part. A common error was to draw an arrow at a probability of $\frac{1}{4}$ instead of $\frac{1}{6}$.

Question 5c

Over 90% of students realised that there were no pink discs and correctly placed the arrow at zero.

Question 5d

Students struggled with this part with just over one-third scoring the mark. Students struggled to explain that there may not be the same number of discs for each colour. A common incorrect answer was 'There might be more than one of each colour.'

Question 6a

This part was very straightforward with over 95% scoring the mark.

Question 6b

Another straightforward part, almost all students scored the mark.

Question 6c

Over 90% scored both marks on this part. Those who did drop a mark often did so by reading from the wrong day. Students should check their answers carefully before moving on to the next part.

Question 6d

Just over two-thirds scored both marks. Some students failed to add the number of cars to the number of lorries to give the denominator. $\frac{8}{12}$ was a common wrong answer, scoring one mark for the numerator 8.

Question 6e

60% of students gave a correct answer here. Just stating the two values was a common answer which failed to score the mark.

Question 6f

Just over 40% of students scored all 5 marks on this part. A common error was to not write the missing days on the x-axis, others failed to complete the key. Some didn't stick to the same width of bars or the same width of gaps as were already there.

Question 6g

Less than 20% of students scored both marks on this part, however, almost all scored at least one mark. Many lost a mark by giving two similar reasons, not two distinct reasons. For both marks students needed to mention a correct statement concerning the limited time period and a correct statement concerning the time of year.

Question 7ai

Around two-thirds of students scored this mark. A common wrong answer was just to write easy or easier without giving a reason why it was easy or easier.

Question 7aii

Almost 90% of students scored the mark. Those that failed to score often did so by stating that the rounding may have been done incorrectly.

Question 7b

This part was incredibly well done with 98% of students scoring the mark.

Question 7ci

Only 13% scored both marks on this part. Lots of students struggled to explain the uneven spacing on the x-axis, others thought that the scale on the y-axis would have been correct if an axis break had been used. This is not the case.

Question 7cii

Students found this part quite difficult with only 30% scoring the mark. Lots of students thought that since there was no data for 2005 the graph could not be used.

Question 7di

This part was done very well, the vast majority of students were able to read the correct percentage from the population pyramid.

Question 7dii

This part was also done very well, nearly all students could use the population pyramid to pick out the age group with the greatest percentage of males.

Question 7diii

Just under two-thirds of students scored both marks on this part. Some made an arithmetical error when adding the percentages together. Students should check their answers very carefully with their calculator before moving on to the next part.

Question 8ai

Three-quarters of students scored this mark. A common wrong answer was 3. students failed to include the last class and only used the class containing the 40.

Question 8aii

Only half of students were able to pick out the median from the frequency table. Very few calculated the cumulative frequencies which would have helped with this part.

Question 8b

This part was done quite well with 70% of students successfully able to use the stem-and-leaf diagram to get the correct answer. Some students became confused as no students took 44 hours to complete the course. Students should read the questions very carefully as this question was looking for the number of students who took more than 44 hours to complete the course, not the number who took exactly 44 hours.

Question 9a

Just under 60% of students were able to complete the tree diagram correctly, however, one-quarter failed to score any marks. A common error was to mix up the probabilities for odd and even.

Question 9bi

Just over one-third of students were able to score full marks on this part. A common misconception was to add the probabilities instead of multiplying them. Some tried to do this without using their calculators.

Question 9bii

Most students found this difficult with less than one-quarter scoring full marks. Lots of students were able to work out the amount taken to be £600 but alone this didn't score a mark. Over half of students could not work out the number of winners by using their answer from part 9bi.

Questions 10a

Over 80% of students scored at least one mark on this part. Many did not know what continuous data was.

Question 10b

Nearly 90% of students scored at least one mark on this part by realising that 2010 to 2015 was the five-year period where the cost of a 2nd class stamp had increased the most. However, only about half of these students could explain how the time series graph showed this.

Question 10c

This part was well done with 80% of students scoring at least two marks out of three. Those that did lose a mark often did so by not joining their points up with straight lines. Some students failed to use a ruler.

Question 10d

This was a really tough part with over 70% of students scoring no marks at all. A small number worked with the 1st class figures to get 181%, but this was given in the question so students should have realised that they had used the wrong class.

Question 11a

Over 80% scored full marks on this part. Those that did lose a mark often did so by using the incorrect inequality symbols.

Question 11b

Just under 50% scored this mark. Students often knew why Tom might not be correct but struggled to explain their reasoning. The simplest answer was to state that it was grouped data.

Question 11c

In this part students needed to use the table, or the histogram, to calculate a percentage. Almost half scored no marks. A common incorrect answer was just to state the frequency, 9, and not turn this into a percentage of 24.

Question 11d

This part was done very well with 80% scoring full marks. Those that did drop a mark often did so by being out of tolerance with their heights. Again some students failed to use a ruler.

Question 12a

This part was done reasonably well with most students being able to work out the mode, or the median. However, only 70% could do both.

Question 12bi

Just under 20% scored the mark on this part. Many thought that the mode was not suitable as it was zero, this was a common incorrect answer. Students had to realise that zero was not suitable as it was the lowest number.

Question 12bii

An incredibly difficult part with only 4% scoring the mark. The vast majority of students failed to realise that the median was suitable, those that did could not give a valid reason.

Question 12biii

Another difficult part with only 9% scoring the mark. Most realised that the mean was not suitable but couldn't explain why. Students failed to realise that there were two outliers making the mean unsuitable.

Question 13a

The vast majority of students did not know what a hypothesis was. Some gave a question as their answer, only 30% of students gave a suitable prediction.

Question 13b

Less than 30% of students scored the mark on this part. Many that didn't score wanted to give a value for the population.

Question 13c

Only 10% of students scored 3 or 4 marks on this part. Most could name random sampling but very few could name convenience sampling or give suitable advantages.

Question 13d

This part was worth 6 marks, 3 marks for working out the 3 quartiles and 3 further marks for drawing the box plot and adding a suitable scale. Only 11% scored full marks with just over one-quarter failing to score a single mark.

Question 13ei

This part was done well with just over 70% scoring the mark. Most students could pick out the median from the given box plot.

Question 13eii

Although most students could pick out the correct median from the given box plot, very few could compare statistically this median with the median from their box plot with only 7% scoring the mark.

Question 13fi

Students struggled with this part with just over one-quarter being able to work out the correct interquartile range from the given box plot.

Question 13fii

This was one of the hardest parts on the paper. The vast majority of students could not compare statistically the interquartile range from the given box plot with the interquartile from their box plot. Only 4% scored the mark.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.