



GCSE

Statistics

8382/1F Foundation

Report on the examination

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General

The majority of students showed a good understanding of most of the statistical concepts with students scoring reasonably well throughout the paper. The mean mark was 48%. 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:

- Calculating the mean from a list of numbers
- Pictograms
- Venn diagrams.

Topics which students found difficult included:

- Calculating quartiles
- Drawing box plots
- Comparing statistically median and interquartile range
- Moving averages and trend lines.

Question 1(a)

This was well-answered with just more than 90% giving the correct answer. Less likely was an answer that was condoned.

Question 1(b)

This was also well-answered with more than 90% scoring the mark.

Question 1(c)

Another question that was done very well with just less than 90% achieving the mark.

Question 1(d)

More than 90% of students knew that a probability of 1 meant that it was certain to happen.

Question 2

Nearly all students scored at least two marks on this part. Most were able to spot three of the four errors. Some students commented on the differing widths of the age groups but this was not worthy of a mark.

Question 3

Another question that performed very well with more than 85% scoring full marks. Some lost a mark as they did the BIDMAS incorrectly getting 56.4, this scored SC1.

Question 4(a)

There were four acceptable answers for this question but less than half of students got this right. Primary was the most common answer, Categorical along with Raw and Qualitative were also acceptable answers.

Question 4(b)(i)

This was a straightforward ‘read off the pictogram’ question. Students had to realise that half a circle was worth one friend, more than 97% got this correct.

Question 4(b)(ii)

Another read off the pictogram question, this time students had to work out how many more friends chose chocolate than vanilla. 93% scored full marks, those that dropped a mark did so by calculating chocolate or vanilla incorrectly.

Question 4(c)

This part was more difficult than it looked with just under 20% getting full marks. Many students lost a mark as they didn’t align their circles up with the circles in the rows above which makes the pictogram ineffective.

Question 4(d)

This part was done well, most students realised that Jessie’s friends would not necessarily be representative.

Question 5

Just under three-quarters scored full marks on this part with ‘yes, maybe and no’ being the most common answer. Some students lost a mark by considering those that had already voted or weren’t voting at all.

Question 6(a)

Only one-third of students were able to give a suitable hypothesis with many incorrectly writing a question instead of a statement.

Question 6(b)(i)

Less than 15% of students were able to correctly name the sampling method.

Question 6(b)(ii)

Only 11% of students were able to give a reason as to why the collection method may lead to bias, many missed the point that they were only asking people at a garage.

Question 6(c)(i)

70% of students got this right with many mentioning a low response rate. Some students mentioned honesty which did not score the mark.

Question 6(c)(ii)

Just under two-thirds got this right, a common correct answer linking to low response rate was to offer a prize.

Question 6(d)

This part was done well with just under three-quarters getting full marks. Some lost a mark by forgetting to shade the bars, others put the bars next to the axis instead of one square across.

Question 6(e)

Just over half scored both marks on this part. Some lost a mark by adding up one of the totals incorrectly. Some mixed up the two towns.

Question 6(f)(i)

Students found this part relatively straightforward with nearly 80% scoring the mark. Lots of students realised that 2 vehicles had a higher bar than 1 vehicle.

Question 6(f)(ii)

This part was also done very well with the vast majority of students realising that no information had been provided for 4 vehicles. A small number of students gave a suitable reason but ticked the wrong box.

Question 6(g)(i)

Students really struggled with this part, simply stating values from the table rather than calculating proportions. Less than 20% of students scored full marks with more than 70% scoring no marks at all.

Question 6(g)(ii)

This was one of the worst performing parts on the paper with many students failing to realise that a higher proportion of people in Manchester didn't have a vehicle owing to better public transport.

Question 7

Only 14% of students scored full marks on this part. Many students did not know enough about the different types of data.

Question 8(a)(i)

This part was done very well with more than 90% of students circling the correct point.

Question 8(a)(ii)

Students struggled on this part with many finding it difficult to explain why the point chosen in 8ai was an outlier, just over one-quarter scored the mark.

Question 8(b)

Just over 15% of students scored on this part. Many gave the answer positive correlation without giving any context.

Question 8(c)(i)

Two-thirds of students scored on this part. Some knew what to do but didn't extend their line far enough to get the mark.

Question 8(c)(ii)

Most students found this difficult with under one-third scoring full marks. Some students didn't have an appropriate line to use and therefore couldn't score, others struggled with the scale and failed to work out correctly what each little square was worth.

Questions 8(d)

Just under one-quarter scored on this part. Extrapolation was a very rare correct answer, Covid and lockdown were referred to by lots of students but these didn't score.

Question 8(e)(i)

Almost half of the students could not explain what an explanatory variable was.

Question 8(e)(ii)

Less than 20% of students scored on this part, most did not know what an extraneous variable was.

Question 9

This was a really tough part with more than 85% not scoring the mark. Continuous data was a rare correct answer, more scored the mark by saying the data was grouped. Some talked about the equal class widths but this did not score the mark.

Question 10(a)

This part was done well with just under two-thirds scoring all three marks. 95% of students scored at least one mark. The odd student made an arithmetical error but students should have access to a calculator and should check their answers carefully.

Question 10(b)

Another part that was done well, many students worked out that there were 113 people who own a computer and scored the first mark, nearly two thirds went on to give this as a percentage to score full marks.

Question 10(c)

Just under two-thirds of students scored the mark on this part. Most students realised that there were 18 people who own a phone and a tablet and a computer but some then failed to give their answer as a probability.

Question 10(d)

Only a quarter of students got full marks on this part. Lots of students worked out the 134 but then lost the second mark by giving the probability with the denominator of 170 instead of 157.

Question 11(a)

This was a really tough part with only 10% of students scoring both marks. Lots of students incorrectly talked about an individual point instead of discussing the patterns across time and lots failed to give any context. 'Increasing' was a common wrong answer, however 'the income is increasing' scored the mark because of the inclusion of context – students need to include the context in a question like this.

Question 11(b)(i)

This part was not well-answered, with just under three-quarters not scoring any marks at all. Lots of students simply did not know how to calculate a 4-point moving average.

Question 11(b)(ii)

This was another really difficult part with the vast majority of students failing to realise that they had to use the given moving average to work out the missing value. 90% of students failed to score on this part.

Question 11(c)

Another difficult part with less than 2% scoring full marks. Students were still able to score two marks even if they had failed to calculate a moving average in part 11(b)(i) by plotting the four given points and then by drawing a trend line using a ruler. Just under 20% scored two marks on this part.

Question 12(a)

In this part three marks were for calculating the quartiles and the final mark was for drawing the box plot. Lots of students failed to realise that the quartiles were the 3rd, 6th and 9th pieces of data. The data was already ordered to aid students. Many were able to work out the median as 6, with over three-quarters of students scoring at least one mark.

Question 12(b)

Less than 5% of students scored full marks on this part with nearly 70% not scoring at all. Some compared the medians without mentioning average wait times, others didn't calculate the inter-quartile range for each day. Some students used the range, this scored a maximum of one mark out of the two marks available for consistency.

Question 13(a)

This part was worth five marks, only 5% of students scored full marks, over three-quarters scored no marks. There were three marks for discussing the first bullet point and two marks for discussing the second bullet point. With regard to the first bullet point, some were able to calculate the proportion but then failed to take off the 5% and scored only one mark as a result. With the second bullet point, some calculated the 92 but then forgot to say if they agreed with the statement or not, which lost them a mark.

Question 13(b)

This part was well done with over 60% scoring the mark. A very common correct answer was to mention that the equipment would likely be different. An incorrect answer seen occasionally was one that discussed the number of viewers, something that is unlikely to alter the number of equipment issues.

Mark Ranges and Award of Grades

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