



GCSE **Statistics**

8382/1H Paper 1 Higher

Report on the Examination

8382
June 2024

Version: 1.0

Further copies of this Report are available from [aqa.org.uk](https://www.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.

Introduction

The vast majority of questions were attempted by most students but with varying degrees of success.

Questions that were answered well included:

- reading values from a box plot
- interpreting population diagrams
- calculating standardised scores
- identifying issues with capture/recapture

Questions which were not answered well included:

- sketching a normal distribution
- identifying outliers by calculation
- assessing the suitability of different averages

A number of unnecessary marks were lost through students not reading the questions correctly, but this was reflected in the final mark scheme.

Students are reminded to show any working as many students failed to do this and as a result were awarded fewer marks.

Question 1

This question was answered very well.

Question 2

This question was not answered well. ‘Bivariate’ was the most commonly seen incorrect answer.

Question 3

This question was answered very well.

Question 4

This question was answered well.

Question 5

This question was common to the Foundation tier.

The majority of students were able to state a hypothesis in part (a) eg School A did better. Common incorrect responses either: described a method or stated a question.

Part (b) was answered quite well with the majority of students clearly identifying the population correctly. Common errors were only partially describing the population eg just stating Year 7 without mentioning the schools.

Part (c) saw the majority of students awarded at least 3 marks. Naming Method A was often incorrect eg quota, but in B random sampling was very often given correctly and for some the only mark gained. For the advantages quick or easy for Method A was a popular correct response but for Method B this was less well answered with 'avoiding bias' a commonly seen response which was not detailed enough to be awarded that mark.

Part (d) was fairly well answered with the majority of students being awarded full marks. Very few of the axes were labelled. A number of students made poor choices when choosing their scale which frequently resulted in problems with plotting some of their values.

Part (e)(i) was answered very well.

Part (e)(ii) was not answered well. Students often failed to make a link to the context of the question, instead choosing to simply state that one school had a higher median than the other or to simply state both medians.

Part (f)(i) was fairly well answered. A common error was a misread of the scales and $28 - 15 = 13$ was a frequently seen incorrect answer.

Part (f)(ii) was not well answered. Students often failed to make a link to the context of the question, instead choosing to simply state that one school had a higher interquartile range than the other or incorrectly state that the larger interquartile range indicated more consistent results.

Question 6

This question was not answered well, with the majority of students not being awarded any marks. Many incorrect answers ignored the context of the question(s) and simply described how to find each particular average. When mention of the outliers was made in answers, students often did not make a judgement as to the suitability of each average.

Question 7

Part (a) was answered well by the majority of students. The most common incorrect answer seen was that there were no groups containing zero 1s.

Part (b)(i) was not answered well with many incorrect answers talking about accuracy rather than reliability.

Part (b)(ii) was not answered well.

Ticking 'No' required students to reference that one had only been generated 11 times which was not close to the expected 20 times. Instead, many students incorrectly looked at the outcomes for each of the groups.

Ticking 'Cannot tell' should have led to comments that more trials were needed. This was the least well explained reason.

Question 8

Part (a) was well answered. Students who did not have a fully correct diagram could still be awarded up to 2 marks from their calculations.

Part (b)(i) was well answered.

Part (b)(ii) was answered well with almost all students awarded at least 1 mark. Students could gain full marks for 'following through' from their incorrect diagram in part (a).

Question 9

Part (a) was not answered well. References to unequal numbers in each group or that one group may not have 30 were common correct responses. Commonly seen incorrect answers included using all 1200 medical records or stating that the sample size was too small.

Part (b) proved more challenging than expected for many students. Incorrect answers usually ignored the fact that a histogram had been given and worked with frequencies instead of frequency densities. This usually resulted in the two missing frequencies being given as 4 and 13 and the frequency density scale being incorrect.

A number of students lost the final mark for incorrectly drawing their final bar from 160 – 200 rather than from 160 – 180.

Question 10

Part (a) was not well answered. Many students correctly totalled the cumulative frequencies but then failed to justify their selection of yes or no. These students were awarded a single mark. Another common incorrect method was to calculate 90% of 501.

Part (b) was not answered well. Many students failed to realise that the size of the farm was categorised by the number of cattle so incorrectly gave answers related to the area the farm occupied.

Answers commenting on the group sizes were not often successful with few explaining clearly, that with a group, the actual number in there could not be known.

Question 11

Part (a)(i) was well answered. The most common error seen was misreading the scale. A number of students performed their additions incorrectly but could still be awarded marks if their values were stated.

Part (a)(ii) was answered quite well. The common error seen was to talk about higher numbers rather than percentages/proportions.

Part (b) was not well answered with less than 50% of students awarded this mark. Common errors were an incomplete comparison eg stating that Spain had 1% of its population aged 90+ but not mentioning Turkey or simply using incorrect values from the diagram due to reading the scale incorrectly.

Question 12

This was quite well answered with the majority of responses awarded all 4 marks. The better solutions were clearly set out and sequenced. Common errors seen were calculating 9.6% rather decreasing by 9.6% or using 0.94 as the multiplier.

Question 13

The vast majority of students were awarded at least 2 marks. However, the 2 correct values were often accompanied with 'No' being selected due to students not using their calculated values in the context of this question.

Question 14

Part (a) was not answered well. The most frequently seen error was to read off a value of 48, leading to a final answer of 78.3%

Part (b)(ii) was not answered well. Many students stated incorrect values for their quartiles. However, they usually obtained a mark for calculating the correct interquartile range for their values. A very common incorrect answer was to state the quartiles as 30 and 90.

Part (b)(ii) was not answered well. Many answers did not involve any calculations at all and as a result could not be awarded any marks. The incorrect calculations seen did not multiply their interquartile by 1.5, often only using the interquartile range itself. Any interquartile range of 13 or over could not gain any marks.

Question 15

Part (a) was quite well answered. Just stating that the area or radius was bigger without referencing A did not score a mark

Part (b) was quite well answered with the majority of students awarded at least a single mark. The best solutions were clearly set out and often enabled answers outside the accepted range to be awarded the method marks. Premature rounding of values often resulted in the final answer being outside the acceptable range for the final mark.

A very common error was failing to square the scale factor with $\frac{10}{9}$ often being used in the calculation.

Question 16

Part (a) was well answered most students awarded at last one mark. Common incorrect answers involved: animals being born or dying, catching honey badgers being dangerous or stating the same correct reason in two different ways.

Part (b) was quite well answered. Some incorrect solutions began well by correctly calculating 175 for the population but added on the original 40. Most correct solutions started by stating two equivalent fractions.

Question 17

Part (a) proved challenging, but most students were awarded at least one mark, although a number of students failed to make any attempt at this part. Many students understood that the peak of the curve should be at 156 but were often let down by their curve being asymmetrical, or by drawing a box plot. The most commonly awarded mark was for the height of the curve at 136 and 176.

Part (b) was not answered well. Recognising 66% - 68% as the area within 1s.d. or 95% - 95.5% within 2 s.d. was as far as many could get to. Students who correctly stated both of these usually continued to a correct final solution. A high number of students failed to make any attempt at this question.

Part (c) was not answered well. Many answers incorrectly referred to a normal distribution, standard deviation or to the spread of data (without stating that it was less spread out or more concentrated in the middle). Mentioning the peaks being the same was a common answer but unless this was followed with a statement about the means being the same, then this could not score.

Mark Ranges and Award of Grades

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