

Principal Examiner Feedback

June 2011

GCSE Mathematics (2381)

Higher Paper (5381H/06)

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1. PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 6

1.1. GENERAL COMMENTS

This paper was accessible to the majority of candidates. There was no evidence to suggest that candidates had difficulty completing the paper in the given time.

- 1.1.1.** As expected, some of the weaker candidates made little progress with the more demanding questions, but most candidates were able to gain marks here and there throughout the paper.
- 1.1.2.** When using a calculator to do calculations, candidates should be advised to use all the digits on their calculator display to avoid the possibility of premature rounding errors.
- 1.1.3.** Candidates should be advised that positive correlation is an acceptable general description of a relationship but that positive (on its own) is not.
- 1.1.4.** When comparing box plots candidates should be advised to use comparative statements that make direct reference to the medians and ranges (or interquartile ranges) of the distributions. Loosely defined comparisons such as 'it rained more in Eastbourne', 'Eastbourne has a wider distribution' and 'median Manchester = 68, median Eastbourne = 80' are unacceptable.
- 1.1.5.** Candidates should be reminded to use a soft pencil when drawing diagrams and graphs.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question A1

This question was answered well. In part (a) most candidates were able to add the decimal numbers correctly and subtract their answer from 1.

In part (b) most candidates were able to extract the correct probability from the table and write down the required calculation (200×0.3). This, in general, was done correctly. A small number of candidates gave their final answer incorrectly as 60% or '60 out of 200'.

1.2.2. Question A2

Most candidates attempted both parts of this question. In part (a) most candidates extended the table to include columns for the mid interval values and for $f \times x$. The vast majority of candidates who did this used the mid values rather than some other point in the interval. Common errors include small numerical errors in calculating particular values of $f \times x$, and in not dividing their $\sum fx$ by 30- typically 4 (the number of classes) and 120 (the sum of the mid interval values).

Part (b) was not done well. Many candidates thought they were expected to write down an interval for their answer rather than to give a particular value. Many of those candidates who gave an interval here gave the wrong interval.

1.2.3. Question A3

Many candidates were able to find the number of terraced houses needed in the sample. The most common approach here was to divide 7380 by 25460 and then multiply by 500, but this was not always done correctly. Candidates should be advised to use all the digits on the calculator when doing their calculations to avoid possible errors due to premature rounding,

e.g. $500 \div 25460 = 0.02$, $0.02 \times 7380 (=148)$.

Another common error here was $7380 \div \underline{50920} \times 500 (=72)$.

1.2.4. Question A4

Many candidates were able to score a mark here for making a sensible start to this question but only the best were able to score full marks. A common approach here was to draw a tree diagram to show all the possible selections- usually as successive independent events, but only the best were able to combine all the elements to arrive at the correct answer. Candidates should be advised to multiply probabilities along the branches of tree diagrams when dealing with P(A and B) situations, and to add probabilities when dealing with P(A or B) situations. Common incorrect answers here were 18/30 and 210/1000.

1.2.5. Question B1

Generally this question was done well, but in part (a) a significant number of candidates were unable to complete the scatter graph by plotting the points correctly. A very common incorrect answer here was to plot the points at (40, 50) and/or (60, 75) or to misinterpret the scale and incorrectly place the point (50, 75). A relatively small number of candidates plotted the points as (60, 40) and (75, 50).

Part (b) was done well. Most candidates were able describe the required relationship. Candidates were equally divided between practical and general descriptions. Candidates should be advised that positive correlation is acceptable but positive (on its own) is not.

Part (c) was done well. Most candidates were able to draw a suitable line of best fit on the scatter graph- few of these were drawn to pass through (0, 0).

Part (d) was done well. Most candidates were able to interpret their line of fit to find a suitable estimate for the number of umbrellas sold. This was usually shown in the scatter graph by drawing a horizontal line from the line of best fit to the y -axis. A common error here was to misinterpret the scale, e.g. by drawing 68 at 76.

1.2.6. Question B2

In part (a) many candidates were able to work out the missing 3-point moving average, but some did not know where this should be placed in the table. A significant number of candidates wrote $48 \div 3$ but were then unable to do this correctly (usually evaluated as 15).

Part (b) was not done well. Only the best candidates were able to explain how the moving average could be 14. Correct explanations often gave two possible figures (sometimes in the table) to total 42, typically 21 and 21. Many incorrect explanations ignored the zero in the table altogether and gave two figures to total 28, i.e. as a 2-point moving average.

1.2.7. Question B3

Part (a) was done well. Most candidates were able to use the information in the table to draw a correct box plot. Common errors here involved the misinterpretation of the scale, e.g. by drawing 68 at 76. Some box plots were not always easy to see on the grid. Candidates should be advised to use a soft pencil when drawing diagrams.

Part (b) was not done well. Candidates should be advised to compare box plots by making comparative statements using direct reference to the medians and ranges (or interquartile ranges) of the distributions. Loosely defined comparisons such as 'it rained more in Eastbourne', 'Eastbourne has a wider distribution' and 'median Manchester = 68, median Eastbourne = 80' are unacceptable.

1.2.8. Question B4

Part (a) was done well. Most candidates were able to complete the cumulative frequency diagram even if they were then unable to draw the cumulative frequency graph. Common incorrect answers here were (8), 12, 22, 13, 5, i.e. the untotaled frequencies, and (8), 20, 42, 57, 62.

In part (b), many candidates were able to draw a correct cumulative frequency graph from their table- usually using a curve to connect the points. Common incorrect answers here were to plot the points at the mid interval values or to drawing a bar chart. Relatively few candidates ignored the scale on the x-axis to draw their own 'squashed' graphs.

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