

Principal Examiner Feedback

Summer 2010

GCSE

GCSE Mathematics (2381)

Paper (5381F_05)

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1. PRINCIPAL EXAMINER'S REPORT - FOUNDATION PAPER 5

1.1. GENERAL COMMENTS

- 1.1.1. The paper proved to be accessible to most candidates with the majority of the candidates attempting all questions.
- 1.1.2. Candidates appeared to be able to complete the paper in the allotted time.
- 1.1.3. It was evident in this examination series that candidates often did not read the question carefully. For example, in B1 (c) candidates often did not give the age and in B5(b) candidates often estimated the number of times the spinner would land on D.
- 1.1.4. Candidates are to be encouraged to show working, particularly when a question is worth more than one mark. Those candidates who gave an incorrect response gained marks wherever their method was sound, whereas giving an incorrect answer without working inevitably lost marks in many questions. This was particularly noticeable in B6 (a) and B6 (b).

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question A1

This question proved to be accessible to most candidates with 97% correctly writing down the number of puzzles sold in March and 78% correctly writing down the number of puzzles sold in May. Candidate found the final part a little harder with 72% managing to show the examiner that one full shape and a third of a shape was needed.

1.2.2. Question A2

It was pleasing to note that most candidates knew the difference between the mode, and the range. 84% identified the mode correctly and 64% wrote that the range was 3. Some candidates are still not identifying the range as a single number and it was not uncommon to see '6 to 9' which could not be given the mark. Part (c) was generally well done and over 60% of the candidates obtained the correct answer of '7'. However, many candidates obtained an answer of 48.125, which was the result of poor calculator technique, and as they did not show any working no marks were gained. Many candidates demonstrated the addition of the numbers given but then failed to gain a correct total before dividing by '8'. However, many of these did gain a method mark. The most common error was for the candidates to calculate the median value of 6.5.

1.2.3. Question A3

80% of candidates scored both marks for the two-way table. Those that did not tended to lose marks from arithmetic errors with only a few candidates making no attempt at all.

1.2.4. Question A4

The candidate's work on this question either showed a complete understanding or a complete lack understanding with over 70% of the candidates failing to score any marks. No working was shown in the vast majority of cases. Some very common incorrect approaches were: $360 \div 24 = 15$, $24 \div 60 \times 100$ or $60 \div 360 \times 24$.

1.2.5. Question A5

This proved to be a difficult question at this tier of entry with over 64% of the candidates failing to score. All of the candidates knew that they had to 'add something together and divide by a number' but this left many choices available to them. Typical errors were not using mid values and inconsistency in the use of intervals. Many candidates did calculate $f \times x$ but then decided to use another approach to calculate the answer. In this case the candidates were offering a choice of methods and the one leading to their result was the one that was marked. The most popular incorrect methods were: $360 \div 25$, $2180 \div 4$, $2180 \div 360$ and $25 \div 4$. Roughly 20% of the candidates scored 3 or 4 marks.

1.2.6. Question B1

Virtually all candidates were able to clearly identify the correct answer required from the table for parts (a) and (b). However, in part (c), candidates had to compare 3 possible cars and this led to more difficulties with either an incorrect comparison of which mileage was greatest or forgetting which piece of information was required (age), and leaving their answer as the greatest mileage. The success rate for this part was 73%.

1.2.7. Question B2

The vast majority of candidates scored at least one mark on this question, with 87% getting both marks. The most common error was a failure to check that their frequency total came to 20 (given in the question), giving one or more incorrect values. There was also some confusion with the column headings with candidates writing the frequencies in the tally column. Unfortunately, this was often accompanied by frequencies as fractions, cumulative frequencies or unrelated numbers in the frequency column which meant full marks could not be awarded. A few candidates totally misunderstood the terms 'frequency' and 'tally', and drew the shapes in the table, perhaps confusing what needed to be done with a pictogram.

1.2.8. Question B3

Most candidates appeared to understand that they were required to write a list of combinations in this question, with 86% scoring full marks. The most common reason for losing a mark appeared to be when the candidate lacked a system of writing the pairs down, which lead to omissions or repetition. Some candidates failed to appreciate that (H,1) was the same outcome as (1, H) and lost a mark for duplication. Some responses consisted of 2 lists H/1,2,3,4,5,6 T/1,2,3,4,5,6, not listing individual outcome, whilst others changed from (H,1) etc to (1,2), (1,3), suggesting that the outcomes of throwing 2 die was a more commonly seen problem.

1.2.9. Question B4

70% of the candidates were able to interpret the stem and leaf diagram correctly in part (a). Incorrect answers included 0.5 from an incorrect interpretation of the diagram, or not giving the smallest value, but writing the mode (12) or the biggest value (35). Part (b) was less well answered with candidates either struggling to locate the median and giving 17.5, or again misunderstanding the notation and answering 8. Only 32% were successful in part (b).

1.2.10. Question B5

Many candidates realised that 'positive', (or positive quantified eg good positive, strong positive etc) was needed in part (a). Errors arose from the confusion of either describing the relationship (older maps cost more), the trend of the points (upwards, diagonal) or naming the axis (price and age). In (b) some candidates drew a line of best fit, even though it was not required as part of the question, and in the majority of these cases they used it correctly and gained the mark. A significant number of candidates showed an inability to interpret the price scale, stating £202, £200.20 etc, although the mark was still awarded as long as the answer was within the required range. Candidates who did not use a line of best fit to help determine their estimate had more problems reading the graph with sufficient accuracy, or misreading entirely where the required point would be. 49% of the candidates scored both marks in this question with a further 36% getting one of the two parts correct.

1.2.11. Question B6

Around 60% of candidates managed to calculate the missing probability and gain full marks in (a). However, poor arithmetic let many candidates down with mistakes in adding the probabilities and an inability to subtract 0.85 from 1, with 0.25 being the common incorrect answer. Many candidates failed to show their working and therefore were not able to access the method mark. Many students, having correctly calculated 0.15 and written it in the table, then lost a mark when they changed this on the answer line, often to $1/5$. Occasionally, candidates converted the probabilities to whole numbers, and got to the answer 15, achieving one mark, but then failed to complete this method by converted back to a probability. Finding an estimate of the number of times A would occur in part (b) proved a challenge. Again candidates failed to write their method even though the common incorrect answers of 250, 2500, 2.5 showed that they were possibly on the right track, and that a method mark may have been possible. Many who showed 100×0.25 achieved this method mark, but then often struggled with this basic number calculation. Answers of 0.25 and $25/100$ showed that candidates had not appreciated that the question required an answer of 'number of times'. Another common misconception was to divide by 5, as there were 5 letters, and either get an answer of 20 ($100/5$) or $1/5$. 28% of candidates scored all 4 marks for the final question on the paper with 41% scoring 2 marks. Only 22% failed to score any marks.

5. STATISTICS

5.1. MARK RANGES AND AWARD OF GRADE

| Unit/Component | Maximum Mark (Raw) | Mean Mark | Standard Deviation | % Contribution to Award |
|----------------|--------------------|-----------|--------------------|-------------------------|
| 5381F/05 | 30 | 19.2 | 5.8 | 20 |
| 5381H/06 | 30 | 20.3 | 6.5 | 20 |
| 5382F/07 | 25 | 14.0 | 4.1 | 15 |
| 5382H/08 | 25 | 14.6 | 4.9 | 15 |
| 5383F/09 | 25 | 13.2 | 4.6 | 15 |
| 5383H/10 | 25 | 13.5 | 5.2 | 15 |
| 5384F/11F | 60 | 30.6 | 12.1 | 25 |
| 5384F/12F | 60 | 36.1 | 12.4 | 25 |
| 5384H/13H | 60 | 32.8 | 10.7 | 25 |
| 5384H/14H | 60 | 36.8 | 11.7 | 25 |

GCSE Mathematics Grade Boundaries for 2381- June 2010

The table below gives the lowest raw marks for the award of the stated uniform marks (UMS).

Unit 1 - 5381

| | A* | A | B | C | D | E | F | G |
|---------------|----|----|----|----|----|----|----|----|
| UMS (max: 55) | | | | 48 | 40 | 32 | 24 | 16 |
| Paper 5381F | | | | 24 | 20 | 16 | 12 | 8 |
| UMS (max: 80) | 72 | 64 | 56 | 48 | 40 | 36 | | |
| Paper 5381H | 29 | 25 | 19 | 13 | 9 | 7 | | |

Unit 2 Stage 1 - 5382

| | A* | A | B | C | D | E | F | G |
|----------------|----|----|----|----|----|----|----|----|
| UMS (max: 41) | | | | 36 | 30 | 24 | 18 | 12 |
| Paper 5382F | | | | 19 | 15 | 12 | 9 | 6 |
| UMS (max: 60) | 54 | 48 | 42 | 36 | 30 | 27 | | |
| Paper 5382H | 23 | 19 | 14 | 10 | 9 | 8 | | |

Unit 2 Stage 2 - 5383

| | A* | A | B | C | D | E | F | G |
|----------------|----|----|----|----|----|----|----|----|
| UMS (max: 41) | | | | 36 | 30 | 24 | 18 | 12 |
| Paper 5383F | | | | 18 | 15 | 12 | 9 | 6 |
| UMS (max: 60) | 54 | 48 | 42 | 36 | 30 | 27 | | |
| Paper 5383H | 22 | 18 | 14 | 10 | 6 | 4 | | |

Unit 3- 5384

| | A* | A | B | C | D | E | F | G |
|-----------|----|----|----|----|----|----|----|----|
| 5384F_11F | | | | 44 | 34 | 24 | 15 | 6 |
| 5384F_12F | | | | 50 | 40 | 30 | 20 | 10 |
| 5384H_13H | 53 | 43 | 33 | 24 | 14 | 9 | | |
| 5384H_14H | 59 | 48 | 37 | 27 | 15 | 9 | | |

| | A* | A | B | C | D | E | F | G |
|-----------------|-----|-----|-----|-----|-----|----|----|----|
| UMS (max: 139) | | | | 120 | 100 | 80 | 60 | 40 |
| 5384F | | | | 94 | 74 | 54 | 35 | 16 |
| UMS (max: 200) | 180 | 160 | 140 | 120 | 100 | 90 | | |
| 5384H | 111 | 91 | 71 | 51 | 29 | 18 | | |

UMS BOUNDARIES

| Maximum Uniform mark | A* | A | B | C | D | E | F | G |
|----------------------|-----|-----|-----|-----|-----|-----|-----|----|
| 400 | 360 | 320 | 280 | 240 | 200 | 160 | 120 | 80 |

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