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Principal Examiner Feedback

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GCSE

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Foundation Paper 02

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1. PRINCIPAL EXAMINER'S REPORT – FOUNDATION PAPER 2

1.1 GENERAL COMMENTS

1.1.1 This is a non-calculator paper. Candidates need to be proficient in their use of the 4-rules of calculation. Many candidates were let down by poor arithmetic. Method marks will still be awarded, but poor arithmetic costs valuable accuracy marks in questions.

1.1.2 Some candidates presented their working well, in particular showing all stages in their working. There was, however, a tendency for many to present work that was disorganised, which made it difficult for examiners to find the evidence for the award of marks. Weaker candidates filled many spaces with multiple additions to replace an inadequacy in performing multiplication. In many other cases several stages of working were intermixed. Presentation of work in columns, or use of labelling would assist in dividing the work up to make it much clearer what processes of calculation are being followed. The advice to centres is to introduce more practice in unstructured questions, problems involving real life contexts, and those which emphasise the functional elements of mathematics. It is these types of questions in which the main weaknesses lie.

1.1.3 Questions in which explanations are required are normally poorly answered. It was pleasing to note that many candidates (in questions 5(ii), 8, 12 and 13) made an attempt at giving an explanation. Simply stating yes / no will rarely get any marks; this needs to be supported by further reasoning provided by the candidate, relating some to numerical evidence as given in the question. Equally working alone will not get full marks, without a written conclusion or comparison also being provided.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

Many candidates drew a kite, though a square or rhombus was also a popular shape drawn. In most cases the shape was drawn freehand. In part (b) it was not common for the correct name; trapezium, square, rhombus were regularly seen.

1.2.2 Question 2

Although most gave the correct answer, many were confused with the ten and multiplication was not uncommon. In part (b) most gave the correct answer, with the most common error being the 4.71 and 13.4 reversed. In part (c) both 0.7 and 0.70 were acceptable as answers. When 7.1, 7,10 or other fractions were given as answers it was clear the candidate did not understand place value.

1.2.3 Question 3

In part (a) it was disappointing to see so many numbers other than "5" given; understanding of the technical term "order" is clearly a weakness. In part (b), however, most candidates gave the correct line. Where the mark was lost this was usually when candidates attempted to draw many lines, and in so doing gave some which were not symmetrical to the shape.

1.2.4 Question 4

It was surprising the number of candidates who described this angle as "right-angled". Predictably there were also many obtuse angles stated, but acute was the most common answer. The majority of candidates gave the correct measurement of the angle. For some it was a guess (no protractor?) whilst for others it was the supplementary angle (incorrect reading off the protractor scale).

1.2.5 Question 5

The first part of this question was usually correctly answered. In respect of giving an explanation centres need to be aware that marks are now only being given for complete answers that have clarity, and make reference to geometrical properties. For this question there needed to be some reference to an "angle", a "line" and "180°", strung together unambiguously in a statement of fact. For example "angles on a straight line add to 180°". A description of the process followed to find the answer was not a reason.

1.2.6 Question 6

A common incorrect answer in part (a) was c^3. In part (b) most scored one mark, but there were too many errors of sign. A common answer was $6x$-$6y$. Too often a correct answer was spoilt by over-simplification, $8xy$ being the best example of this.

1.2.7 Question 7

The diagram was usually drawn correctly, but some candidates had difficulty in lining up the dots, resulting in diagrams that were ambiguous. In part (b) a variety of methods were used by candidates. Those who attempted diagram extensions found counting their many dots quite a challenge. The most common approach was to generate the sequence 7, 10, 13, 16, 19 … but poor arithmetic resulted in many wrong answers. Either an error was made in adding on 3s, or an incorrect number of terms were used, resulting in many answers of 46, or more commonly 52. A common misconception resulted in "3 × 15".

1.2.8 Question 8

It was encouraging to see many attempts at this question, which usually started with the addition of three of the costs. Misreading of the question resulted in many adding in the food cost as a single item, without multiplying out to give 1200 first. As a result 1600 was usually compared with 422 rather than 1600 with 1612. This final mark was a QWC mark for written communication: candidates had to compare their two figures and come to a stated conclusion. Those who did so with clarity gained the mark, even if the two figures they were comparing were wrong, though the two figures needed to be clearly stated. Figures merely given without a comparative statement failed to gain the mark. The most significant weakness in this question was the inability of many candidates to multiply by 100 efficiently. Many times were grid methods seen, or long lists of repeated addition, both of these usually with errors.

1.2.9 Question 9

Throughout this question there were issues with misreading figures, picking the wrong temperatures from the table to use, and failure to find the correct difference between two temperatures. Success rates were therefore lower than expected.

1.2.10 Question 10

Many gained the correct answer in part (a), but it was disappointing to see many stating "1 × 1 = 2". In part (b) few gained the correct answer, with many showing a poor level of understanding. 4/10 or an equivalent was the most common response seen. A few used 16 as common denominator but got both numerators wrong.

1.2.11 Question 11

It was clear that many candidates mis-read the question, since "8" for the number of vertices or "6" for the number of sides were commonly seen. Some only counted the bold (seen) edges. In part (b) there were some attempts at finding the surface area, or the total of the edges (5+4+100). Many stated "10×4×5" but again poor arithmetic then resulted in the wrong answer. There was also a units mark for this question, but many candidates failed to spot that the units were needed, or perhaps were not used to giving them anyway. When the units were stated cm or cm^2 were more commonly seen than cm^3.

1.2.12 Question 12

Candidates could either use the graph or the given rate for conversion. Most preferred to use the rate, though poor arithmetical process when multiplying or dividing by 30 again spoilt many answers. The question asked for total costs to be compared, so candidates who only compared the costs of individual items could not gain the full marks. Those usually the graph sometimes made errors in reading off the values from the scale, even though these led to exact values. Examiners had difficulty in awarding marks where presentation was poor, and it was difficult to isolate sound working as evidence for the award of method marks.

1.2.13 Question 13

Working in this question was frequently disorganised. A significant number started badly because they multiplied 35 by 150 rather than 15. The greatest problem was that candidates seemed to have no idea how to allow for the free stick for every ten bought; most candidates ignored this and found the cost of 150 at £4. Others decided that if buying 150 sticks then 15 of these would be free, so they found the cost of 135. To gain the final mark for the comparison examiners had to be sure which two numbers were being compared by the candidate; in many cases this was not clear.

1.2.14 Question 14

There were many candidates who failed to attempt this question, and few gained full marks. The most successful attempts were from those who drew a table of values. Some drew a line which sometimes went through (0,3), but rarely had the correct gradient.

1.2.15 Question 15

It was encouraging to see many successful attempts at this question, even from those whose arithmetic throughout the rest of the paper was poor. Partitioning methods were popular, but often contained errors caused by extra zeros. Other typical errors were 20 × 30 = 5000 instead of 6000, and 40 × 4 = 120 or 80. Grid methods were also popular, but here it was usually poor totalling that let candidates down. Repeated addition was usually unsuccessful.

1.2.16 Question 16

Part (a) was usually answered correctly, and in part (b) most candidates realised that the answer had to include a "4" somewhere. Unfortunately for many this was not with an *n*. Common errors included *n*+4 or just "+4".

1.2.17 Question 17

A common mistake was to just divide the individual numbers in the ratio. Some noticed that 5 was half of 10 and so found half of 300 to get to the answer.

1.2.18 Question 18

There were many good attempts at this question, with a significant number of correct solutions. Most candidates attempted to list the multiples, but were often handicapped by poor arithmetic, resulting in very long lists without a common multiple being found. Some who achieved 120 in both lists then mis-counted the number of 24s or 40s they had in their list. The final mark was quite frequently lost because they thought they needed to add the number of sausages and rolls, arriving at 240 instead of 120.

1.2.19 Question 19

This was almost always treated as if the 280 was volume. Some appeared to recognise that is wasn't volume and they took the area from 280, but then reverted to volume. Some thought that the height must be the same as the width and gave the answer 5 cm. Very few correct answers.

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