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Principal Examiner Feedback

June 2011

GCSE Mathematics (1380)

Foundation Calculator Paper (2F)

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1. PRINCIPAL EXAMINER'S REPORT – FOUNDATION PAPER 2

1.1. GENERAL COMMENTS

1.1.1. Many candidates failed to show any working out. Where answers were wrong these was no option but to award 0 marks for the question. Equally for longer questions working should be organised in such a way as to be followed by an examiner.

1.1.2. The proportion of candidates failing to bring a calculator to this examination appeared to be higher than in previous session. They were, of course, disadvantaged in a number of questions on the paper. There was also some evidence that candidates were attempting some questions which required measurement without a ruler.

1.1.3. Simple presentation of written numbers appears to be getting worse. Examiners frequently had difficulty in recognising digits, with 7s that look like 4s, etc. Equally is the problem with decimal points: in too many cases decimals or amounts of money were written and Examiners could not see a decimal point where they expected it to be. Is this a case of it missing, or a candidate not showing it clearly enough to be seen.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question 1

Part (a) was well answered.

In part (b) most gave the correct answer of 32, but there were some who gave the incorrect answer of 31, assuming each mark represented 1 unit.

Success rates were not high in part (c). There were many who counted marks to the right of the "-8" marker.

1.2.2. Question 2

Part (a) was well answered. There were some examples of candidates giving numbers that were not in the list, but this was not common.

In part (b) candidates continued thinking about square numbers. Some attempted a definition of a prime number, but sometimes "numbers dividing into" was confused with "numbers that 8 can divide into" or "multiples of 8". Few showed a sound understanding of what it means for a number to be divided only by itself and 1. There were many incorrect statements like "no prime numbers are even" or "all prime numbers are odd".

1.2.3. Question 3

Most candidates gave to correct answer in part (i), though there were some who thought the angle on a straight line was 200° or 160° instead of 180°.

In the second part candidates had to use geometrical language rather than showing working. Many answers were too vague, and failed to refer to angles, to the straight line, or to the sum to 180°. Many candidates had clearly been drilled into the correct form of words, and for them this was an easy mark.

1.2.4. Question 4

Part (i) was answered correctly in most cases.

In the second part squares for Bhavini were usually correct, but the partial amount for David caused more problems. Common errors in this respect included incomplete squares, or squares which were poorly differentiated in size. Common errors in drawing a key included written explanations (which usually failed to refer to a square symbol).

A significant minority thought that a square was equal to 5.

1.2.5. Question 5

Most candidates were able to measure the line correctly, but many failed to include the units with their numerical answer.

In part (b) nearly all candidates were able to mark the midpoint of the line accurately. There is some evidence that some candidates could have been attempting this question without the aid of a ruler, since units were stated, but there was a wide variation in the numerical answer given.

1.2.6. Question 6

This question was answered well and most candidates gave their answers in a systematic manner. Those who didn't often repeated or omitted answers. Not all answers were given in an ordered fashion.

1.2.7. Question 7

Many correct answers were given in part (a), though some candidates decided to give their answer in a non-decimal form.

In part (b) $\frac{7}{10}$ was the most common answer, but $\frac{7}{100}$ was also quite common.

1.2.8. Question 8

Overall this whole question was well answered. Even the weakest candidates felt there was something to have a go at. In part (a) nearly every candidates scored the mark.

In part (b) some could not add correctly and ended up with £3.70 or similar. Some read the table incorrectly.

In part (c) most candidates realised they had to calculate how many 1.30s would go into 10. Many divided by a calculator whilst others used repeated addition or subtraction, with varying success. Some scored 1 for giving 9 when finding 7 x 1.30 (=9.10), or for rounding up to 8.8. Some misread the question and found the cost of 10 sandwiches.

1.2.9. Question 9

Approach to this question was inconsistent. It tested technical knowledge, and candidates answered correctly depending on their knowledge. There was no particular pattern to incorrect answers.

1.2.10. Question 10

This was a well answered question. The only major error was when candidates reversed the x and y coordinates. It was rare to see this done in all parts, rather when candidates did this it was in one part only.

1.2.11. Question 11

Part (a) was well answered, but in part (b) many candidates predictably gave the incorrect answer of $4y$.

In part (c) many candidates earned 1 mark for one term correct, but only the minority gained the 2 marks. The most common incorrect answers were $7e + 8f$ and $7e - 2f$.

1.2.12. Question 12

There were a lot of answers given as 89.3 where they had forgotten to subtract from 100. Similarly mistakes were made in adding up the four percentages given, this is disappointing on a calculator paper.

A common mistake in part (b) was the division of 1616000 by 30 to calculate 30%, or writing 10% as 1610 instead of 161600. Some students divided in an attempt to find the percentage, and found the answer, to then take it from 161600. With such a multitude of errors taking place, only a minority scored full marks in this part.

1.2.13. Question 13

Most candidates drew a correct diagram; only a minority demonstrated the common error of adding too many squares.

Part (b) was also answered well.

But there were few correct answers in part (c). The most common mistakes were related to working out the difference between the terms in the sequence and interpreting this as the nth term. Common incorrect statements include $n + 2$ and $n + 1 \times 2$. Some included the $2n$, but with an incorrect number term.

1.2.14. Question 14

Surprisingly this was not answered well. Common incorrect answers included 45.74 or 6.76.... Use of the calculator without any thought was clearly the issue for many.

1.2.15. Question 15

Part (a) was well answered.

Part (b) was also answered well, with many instances of the correct answer; a minority gave the answer 2, with some guesses, but overall better than expected.

In part (c) candidates demonstrated a better approach than recently, with fewer resorting to trial & improvement. Many failed to show their working and probably lost marks when the final answer was incorrect. Common errors included 13, 3.5 (from $10 – 3 \div 2$), 11 (from 13 - 2) and 26 (from 13×2). Many obtained $2x = 7$ but then failed to understand how to find the x.

1.2.16. Question 16

This question was answered well. Most candidates were able to use the timetable to answer the various questions, and most candidates presented their answers using an appropriate notation for time.

Parts (a) and (b) were mostly done correctly.

A common incorrect answer in part (c) was 11 03.

1.2.17. Question 17

There appeared to be a general lack of understanding of what a formula is. Many answers had two equal symbols in them. Some answers were figures. $8x$ and T= were frequently seen, but rarely was the formula completed correctly. Many candidates attempted a numerical solution to the question.

1.2.18. Question 18

This was a well answered question. Most candidates were able to calculate the total number of seats in the given coaches to be 346 and scored 2 marks for this. However, many did not write a conclusion as to whether this was a sufficient number of seats or not. Candidates need to make sure that they read the question carefully, both to establish the process to the solution, and what is needed to fully answer the question. A common error seen was $3 \times 38 = 144$.

1.2.19. Question 19

A significant number of candidates failed to attempt this question. Those who drew their own table were usually successful in then going on to plot some points, and gained marks in the process. A few seemed confused by the different scales on the x and y axes, although some did manage to draw a line with gradient 4.

1.2.20. Question 20

Parts (a) and (b) were generally well answered. Most candidates appeared to understand how to generate symmetrical shapes fro meet the stated criteria.

In part (c) the majority of candidates wrote a fraction. Usually the numerator was given as 9, but many candidates failed to account for the larger equilateral triangle being of a different size to the smaller triangles and counted 13 instead of 16.

Most candidates failed to make progress with part (d). Most got as far as finding one side length as 8, either by calculation or shown on the diagram. Many candidates added lines inside the middle triangle or failed to count the sides correctly.

1.2.21. Question 21

Many candidates failed to show much clear working on this question. A common early error was to take their 64p away from 3.20 instead of 2.95, or to just subtract 2.95 from 3.20. Many failed to divide by 3 at the final stage. Many candidates who arrived at an answer of 77 lost the final mark because of the way in which they wrote their answer often giving 0.77p.

1.2.22. Question 22

In part (a) there were many 0.2s provided. Sometimes candidates attempted to write their answer in a different way, sometimes using incorrect notation, but this was not particularly common. The most common incorrect answer was 0.3, but with no working shown.

In part (b) a minority gave the correct answer. 200 and 150 were often given as answers. Rarely was any working out seen, but where it was it highlighted many misconceptions such as $800 \div 0.2$.

1.2.23. Question 23

Most candidates managed to score one mark on this question, with images generally having the correct orientation, if not in the correct position. A surprising number of translations and incorrect rotations were seen. Perhaps the advice to use tracing paper was not heeded. The most common errors included the drawing of diagrams in three quadrants, or the correct orientation being positioned incorrectly. An issue here for examiners is when candidates attempt to redraw an attempt, leading to several conflicting diagrams on the gird.

1.2.24. Question 24

Many candidates were confused by this question. There were many attempts at volume, or simple addition of all the lengths. Many others could not find the area of a triangle. Some assumed the triangles were isosceles. Many failed to identify correctly the 5 surfaces for which they had to find the area. Those who attempted this question showed working that was frequently confused, and examiner had difficulty in identifying sound working, that was not contradicted, in order to award method marks.

1.2.25. Question 25

The response of some candidates gave the impression that they had never seen a stem & leaf diagram before, with a predominance of tally charts, listing, pictograms, and even two way tables. Most tried to order leaves, once found, though a surprising number had leaves missing. Even though they were directed to include a key, many did not, or failed to show any understanding of what a key should look like.

1.2.26. Question 26

Many candidates worked out $\frac{3}{4}$ of 120, but then failed to understand what was necessary. Too many found $\frac{2}{3}$ of 90 (the number given away rather than 30, the number Bob was left with). Subtraction of 120 rather than 30 was a further common error. Some changed the fractions in to percentages and proceeded to use non-calculator methods to find 75% of 120. Changing $\frac{2}{3}$ into a percentage was usually accompanied with premature rounding and other errors.

1.2.27. Question 27

Only rarely were any marks awarded in this question. There were the usual false starts using the circumference formula, or misuse of figures for the radius. If marks were gained at all, it was for an attempt to calculate $\pi 5^2$. There were many attempts to use $\pi 1^2$, and rarely $\pi 6^2$. Some showed a vague notion of finding two areas and taking them away, but could not find the correct radii to process the solution correctly.

1.2.28. Question 28

Some good solutions were demonstrated. In some cases candidates chose to use x^2 instead of x^3 or 5 instead of $5x$. In these cases no marks could be earned. It is important to show the result of any calculations, and many candidates did so, earning them some early marks. There were many who gave 3.65 as an answer, without considering the instruction to round the answer to 1 decimal place. Equally there were many who gave the correctly rounded answer of 3.7, but failing to show a trial between 3.6 and 3.7 meant that only 3 of the 4 marks could then be awarded.

Poor presentation in this question was frustrating for examiners anxious to award marks, but thwarted in some cases by unclear and contradicting work.

1.3 GRADE BOUNDARIES

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