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Principal Examiner Feedback

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GCSE Mathematics (5384F)
Paper 11F (Non-Calculator)

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1. PRINCIPAL EXAMINER'S REPORT – FOUNDATION PAPER 11

1.1. GENERAL COMMENTS

1.1.1. This exam paper was found to be a little more demanding than some that have been taken in previous sessions however the paper did give a reasonable range of marks for the award of grades.

1.1.2. It was disappointing to see poor responses to questions where a description of a process was asked for or for where a reason for an answer was required. This was particularly the case in Q8, the geometric explanation question.

1.1.3. Generally speaking the standard of straightforward algebraic knowledge was not as good as in some previous sessions and the quality of the algebraic manipulation was very poor with many candidates making elementary errors in their attempts to simplify expressions and to solve equations.

1.1.4. A significant number of marks were lost where candidates failed to show working and only wrote incorrect answers on the line.

1.1.5. Q1 – 7, Q11 – 13(a) were tackled with the most success.

1.1.6. Q8 –10, Q13(b), Q14 – 20 were less successfully completed.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question 1

This question was very well understood and very well answered with 76% of candidates gaining both marks for correctly calculating 960 – 23 + 16 correctly. 15% of candidates gained one mark for correctly writing own the necessary arithmetical operations with only 9% not scoring any marks.

In part (b) 76% of candidates were able to write $\frac{1}{4}$ as a percentage.

1.2.2. Question 2

This question was well understood with part (i) being answered correctly by 75% of candidates.

Part (ii) was less successful with – 15 being a very common wrong answer; 53% did however write the correct answer of 15

1.2.3. Question 3

Part (a) was well understood and well answered with 91% of candidates gaining the mark for reading the timetable however part (b) was only answered correctly by 27% of candidates with 43% of candidates scoring 1 mark for correctly subtracting one set of times. Candidates on this tier of entry find subtracting time very difficult.

1.2.4. Question 4

This question was not that well understood with congruency (61%) and enlargement (23%) not being that well understood but symmetry being more successful (90%)

1.2.5. Question 5

In this question many candidates made simple errors in the subtraction by incorrectly dealing with 4 – 8 in the units column with 444 being a very common wrong answer, having said that 78% of candidates gained 2 marks. In part (b) 73% gained 2 marks for 140 and a further 15% gained 1 mark for a partial method e.g. 4 × 7 = 28 and their 28 × 5 =. Other incorrect approaches were finding the 140 but then adding a further 28 and working out 4 × 7 + 7 × 5.

1.2.6. Question 6

This question was very well understood with 82% gaining the mark for $\frac{1}{4}$ of £24 and 83% gaining the mark for finding 10% of 400 kg.

1.2.7. Question 7

In this question 10% of candidates understood it was about reverse processes and gained a mark usually for multiplying 21 by 3 or for attempting an algebraic approach. Many candidates tried to add 7 to start with, or to divide 21 by 3, and unfortunately did not score any marks. 58% of candidates gained 2 marks for the correct answer of 70.

1.2.8. Question 8

Only 16% of candidates scored both marks in the question by correctly working out the missing angle as 50º and then correctly stating that two angles of an isosceles triangle need to be equal. 13% of candidates managed to work out the 50º and scored one mark and the most common wrong answer was to say that two sides of an isosceles triangle are equal and sometimes parallel too. Many could picture the isosceles triangle with the base angles equal hence angle B=80º.

1.2.9. Question 9

This question was very well understood with 17% of candidates gaining one mark for adding 3.45 and 1.8 and then a further mark for attempting to subtract their addition from 10 was obtained by 25% of candidates; this was a mark which was lost by the many candidates who did this final stage incorrectly in their heads. The correct answer of 4.75 was obtained by 48% of the candidates. A very common wrong answer, involving incorrect place value, was to add 3.45 and 1.08 instead of 1.8 and show 4.53 in the working space. This was given as a special case and 1 mark was awarded, if they then went on at took 4.53 away correctly from 10 and obtained 5.47 then two marks were awarded.

1.2.10. Question 10

This question was not very well understood and candidates struggled to score marks. In part (a) only 53% scored the mark. The most common errors were writing h^4 as $4h$ or $h4$.

In part (b) substitution into an expression was beyond a lot of candidates on this paper. The vast majority of candidates were able to substitute 5 into $4x$ and 20 was seen often however many candidates substituted $\frac{1}{2}$ into $2y$ and wrote $2\frac{1}{2}$ and then 2.5 rather than multiplying $2 \times \frac{1}{2}$ as 1. 14% of candidates gained 1 mark for substituting correctly with multiplication signs and 41% gained both marks for 21.

In (b)(ii), only 41% of candidates could cope with both the squaring and the 10 –.

1.2.11. Question 11

This question on rotational symmetry was well answered. In part (a) 76% of candidates were able to correctly mark the centre of rotation and in part (b) 51% of candidates were able to complete the shape so that it had rotational symmetry of order 4.

1.2.12. Question 12

This question was well understood and the majority of candidates were able to read and understand the distance time graph. 79% gave the correct answer for a time, 68% gave the correct answer for a time period and 62% for interpreting a distance.

1.2.13. Question 13

In part (a) candidates understood what the net should look like and 66% of candidates were able to draw an appropriate one. Some candidates made the base too much like a rectangle and some used a triangle and some drew a 3-D diagram.

In part (b) only 34% of candidates were able to draw all the construction lines accurately and draw an accurate equilateral triangle but 35% drew the triangle accurately without the construction lines.

1.2.14. Question 14

In part (a) of this question 16% of candidates were able to write £4 as a fraction out £20 and 64% were able to give it in its simplest form.

In part (b) 1% gained 1 mark for writing 6 as a percentage of 20 and 41% gained the two marks for simplifying it to 30%. Many candidates failed to score any marks by not multiplying 6/20 by 100 whilst a frequently successful approach for 2 marks was a percentage build-up method e.g. 10% = £2, 2 × 3 = £6 and 10 × 3 = 30%.

In part (c) most candidates misunderstood the order of the processes required and 2% gained one mark for (£10 ± £1.50) ÷ 2 whilst full marks were gained by 10% of candidates. The most common incorrect method was 10 ÷ 2 + 1.50 = £6.50.

1.2.15. Question 15

Writing an algebraic equation from a written description has always been a high order skill on a foundation paper. This proved to be the case in this paper. In part (a) 4% were able to gain the mark for writing a simplified equation whilst 3% gained 1 mark for an unsimplified equation.

In part (b) 25% were able to solve the equation whilst 4% gained 1 mark for making a first attempt to solve the equation.

A popular approach was trial and improvement which was unrewarded in (a) but often led to 2 marks in (b).

1.2.16. Question 16

This question was poorly answered with few candidates able to divide 4.8 by 24 to gain the correct answer of 0.2 m or 20 cm. 4% gained one mark for an attempt to divide 4.80 or 480 by 20 whilst only 5% gained the correct answer. Some tried a 'sharing in given ratio' method so did 1+24=25, 4.8÷25 for no marks and in many cases the concept of ratio was altogether misunderstood as 4:8 and 1.24 were seen.

1.2.17. Question 17

Addition of fractions is another difficult topic for foundation candidates and this proved to be the case on this paper. 5% of candidates gained 1 mark for writing one out of the two fractions correctly with a common denominator but only 31% gained both marks. The majority gaining no marks had no idea about a correct method and the most common incorrect answer was $\frac{3}{10}$.

1.2.18. Question 18

In this question one mark was awarded for an intention to move the variables to one side of the equation or the constants to the other side. This mark was obtained by 15% of candidates. The percentage of candidates that gained both marks was just 9%. Frequently candidate s added terms instead of subtracting giving and $4y = 20$ was seen often but unfortunately scored no marks.

1.2.19. Question 19

In this question a candidate could gain one mark for writing the exterior angle of a hexagon as 360 ÷ 6 and then writing the internal angle as 180 – 60. If candidates realised that the missing angle was 360 – (120 +90) then full marks could be obtained however only 9% gained all four marks. 8% were able to gain a mark for finding 60^0 but most thought this was the interior angle, potentially leading to the special case of 210^0 which was scored by 8% of candidates. Another significant group assumed the diagram was accurate and measured the angle as being in the region of 145^0.

1.2.20. Question 20

This question was poorly answered but one mark could have been obtained in part (a) for drawing any translation and 68% gained this mark but only 3% gained the mark for a fully correct translation using the correct scale. A common error was misreading the scale.

In part (b) even fewer candidates (2%) obtained the correct answer whilst 3% gained one mark for drawing the line $y = x$. Many reflected in a different line such as the x or the y axis.

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