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Principal Examiner Feedback

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GCSE

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 It was pleasing to see that the vast majority of candidates on this paper were willing to have a go at showing what they could do. There were very few blank answer lines. Generally candidates were good at calculations with money at reading simple statistical diagrams and at working out angles in shapes. They were less good at giving reasons when working out those angles. There are still a considerable number of students who appear to sit this paper without the use of a calculator.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

This was answered well, although there were some difficulties with part (b) where 12 was often given as an answer from reading 2 steps from 10. On part (c), candidates sometimes lost the mark by confusing fractions and decimals and writing $100.\frac{1}{2}$. On part (d), many candidates marked –4.8 rather than –5.2

1.2.2 Question 2

This question was very well done. Candidates could interpret the diagram and could also complete it.

1.2.3 Question 3

This was the first question where candidates would have helped themselves if they had brought a calculator. Very few confused the £ and p, so answers which came to more than £10 for the total cost were fortunately rare. More common errors came from those who added the cost of one of each item and from those who forgot to subtract their total from £10. Candidates would have scored more marks on average if they had displayed more working.

1.2.4 Question 4

Those with ruler and protractor generally were successful on this question. On part (a) some candidates were confused by the notation 'line *AB*' and thought they had to measure the length of both of the lines in the diagram. Some candidates forgot to put down units. If they were put down, then they were almost always correct. In part (b), most candidates who put down an angle put down the correct answer, although some possibly rounded it to 50 and some plumped for the obtuse angle of around 133 degrees.

1.2.5 Question 5

On part (a) there was the usual confusion between area and perimeter. This was less apparent in part (b). Most candidates were able to identify the congruent shapes, despite the differing orientations. Part (d) was not done well, with lots of confusion over the meaning of scale factor, with units often being included.

1.2.6 Question 6

Part (a) was answered well, but many candidates carelessly wrote the fraction $\frac{2}{11}$ instead of the correct answer $\frac{2}{5}$ for part (b).

1.2.7 Question 7

Answers to this question were pleasing. The most common error on part (a) was to write k^5. On part (b), candidates often did not carry out the simplification far enough, leaving the answer as $5m - m$. The equations in the remaining parts were generally well answered.

1.2.8 Question 8

Part (a) was well answered. Part (b) less well so. There were many cases where oddly enough, part (a) was answered correctly, but part (b) was not and the point C was marked at (-1, 5)

1.2.9 Question 9

Most candidates could extend the pattern of squares in part (a) and virtually all could do part (b). There were many good answers to part (c) which earned marks – from the minimal 'It's odd' to the more eloquent ' 625 is odd but the sequence consists of even numbers starting with 2' Some candidates failed to score because they just wrote that the sequence goes up in 2s, without stating that the first number is 4. A few thought that the question was about multiples of 4.

1.2.10 Question 10

Most candidates could get the correct answer to part (a). In part (b) many candidates misread the scale and gave the answer as 10.2 rather than the correct 10.4.

1.2.11 Question 11

Sadly, some candidates gave the answers of 42 and 62, but in the wrong parts. In part (a) some candidates identified the correct two numbers but then left the answer as 45 – 87. Other non-scorers included working out the median in part (a), or part (b) and leaving the answer (usually in part (b) as 434, the total. On occasion candidates had the correct idea of the mean, but misused their calculator by failing to press = after the last value before dividing by 7

1.2.12 Question 12

Parts (a) and (b) were generally well answered. Part (c) posed a greater problem as candidates had to at least know that the required probability was comfortably less than one half and comfortably more than zero. Many, in fact, put their cross at the halfway point which may have been due to the confusion of 'less than 3' with 3 or 2 or 1.

1.2.13 Question 13

Part (a) was often recognised as a 'hexagon' and in part (b) many candidates were able in some fashion to indicate which two sides were parallel, although in some cases the convention of placing arrows on parallel lines has passed them by. In part (c) the word 'obtuse' or a variant spelling was often seen.

1.2.14 Question 14

This was the first question which really required some thought to answer the question. The most straightforward way is to find the cost of 1 yoghurt from Food Mart (36p) and 1 yoghurt from Jim's Store (35p). From this most candidates were able to conclude that Jim's Store was cheaper. Another approach was to calculate the cost of 1yoghurt from Jim's Store followed by the cost of 5 yogurts (£1.75). This was then compared with the £1.80 from the Food Mart. Less common was to use the lowest common multiple of 3 and 5 and calculate the cost of 15 yoghurts in each of the shops.

Less successful was the method where the candidate divided the number of yoghurts by the cost (so, for example 5÷1.80). In most cases candidates selected the wrong answer when they did it this way. Many candidates were confused by the information and multiplied the £1.80 by 5 and the £1.05 by 3 and made a (very) wrong conclusion. Another wrong approach was to work out the cost of 10 yoghurts from Food mart and 9 from Jim's store and try to argue that the difference was 'big'. This did not get marks.

1.2.15 Question 15

There appeared to be a lot of confusion over the meaning of 'prime' in part (a). Two common answers were 4, possibly because it is a square number and 1 because it is first in the list. On part (b) most candidates were able to write down at least a couple of factors, but often extra numbers (typically 4) crept in.

1.2.16 Question 16

On part (a), many candidates could not order these decimals, with 0.63 often written first, presumably in its relation to sixty three (p). Part (b) was poorly done. The most successful candidates were those who rewrote the fractions as decimals. Some candidates tried to make a judgement by drawing circles and then shading. They were generally unsuccessful. Very few used equivalent fractions with a denominator of 24, although the first three were often correctly written with a common denominator of 12.

1.2.17 Question 17

Part (a) was well done although some candidates read the question as two adults and two children rather than three children. However, it was very noticeable that candidates without a calculator often could not double or multiply by 3 accurately. Many of these wrote down 5 fares and added them up, not always successfully. Answers to part (b) were hit and miss with multiplication by 1.84 seen as often as division by 1.84. Part (c) was better answered, at least as far as the division by 8 being concerned. Candidates who multiplied by 8 to get an answer over 50000, seemed not to be phased by a speed of this magnitude. For some unknown reason, some candidates decided to divide by 480, the number of minutes in 8 hours.

1.2.18 Question 18

Part (a) was well answered with most candidates being able to interpret the question and follow the order of operations, although some stopped at the first stage of 24. They were less successful on part (b), with often the order being carried out in wrongly. So, many candidates divided by 3 first to get 14 and then subtracted. Some candidates started on part (b) correctly with 42 – 6 = 36, but then stopped.

1.2.19 Question 19

In part (a)(i), many candidates were able to carry out the calculation and then get the correct answer of 88^o. They were less successful in giving a sufficient explanation for their answer, in many cases just giving a description of what they had done. In order to access the mark they had to refer to the fact that the sum of the angles of a quadrilateral is 360^o.

Part (b) was essentially a two – step process for the candidates on this tier as the relationship between the exterior angle and the sum of the two opposite interior angles was unknown. Many candidates were able to calculate the angle adjacent to the given 144^o and then subtract this angle and the 69^o from 180^o to get the correct 75^o. Many candidates left the answer as 36^o and they may have been more successful if they had got into the habit of placing found angles in diagrams. Once again, the explanation was poorly done – very few candidates were able to quote both angles on a straight line and angles in a triangle. There was plenty of evidence of the usual confusions and misconceptions – the two most common being that the triangle was isosceles and that the sum of the interior angles was 360 or 380 degrees.

1.2.20 Question 20

All parts of this question were very well answered.

1.2.21 Question 21

Many schools train their students to work out the numerator and the denominator separately and put those down as working. In this way students are more likely to get the correct answer or at least score a mark. The usual error for those who did not do this was to finish up with 21.01… from not using brackets around the denominator. It was salutary to see that of the students who did work out the top and bottom of the fraction and write these down that this was sometimes followed by addition or even subtraction of the two values. Most candidates took note of the instruction to write down all the figures. Some could not resist using approximate values.

1.2.22 Question 22

Using Pythagoras is generally confined to the more able candidates on this paper. Some of those who knew the theorem were unable to apply it successfully – often adding the two values and ending up with a 'shorter' side of 10.4, or squaring and subtracting, but leaving the answer as 56 or as 28. A few tried scale drawings – but these scored no marks.

1.2.23 Question 23

This question was also a challenge for candidates of the paper. The most common method was to note that 20 × 5 = 100 so 8 × 5 = 40. Some students went down the fraction route of $\frac{8}{20}=\frac{4}{10}$ = 40%. A minority did the method of multiplying the fraction by 100. Many candidates tried to work out 20% of 8.

1.2.24 Question 24

There were many good answers to this simple but multipart question. The most common errors were on box 3 where 5 rather than 15 was put down and on box 4 where the number 2 (from just 10%) rather than 22 was put down. Some candidates when adding up the total number of beads forgot about the first box.

1.2.25 Question 25

Candidates are allowed to use tracing paper in Edexcel examinations so it is a pity to see so many wrong answers to part (a). There were a variety of non-scoring efforts – mainly rotations or reflections in a line of the form $x = k$. In part (b), many students had a good go at the enlargement and did achieve some shape that was similar to the original. The main error was that there was little understanding of the role that the origin played as centre of enlargement. Those students that drew guidelines from the origin generally did better, but even then the lines were so poorly drawn that full marks were not scored. A few candidates interpreted scale factor 3 as meaning that the image had to be 4 times the size (or twice the size).

1.2.26 Question 26

There were many sensible and occasionally inventive answers to the first two parts. The main error was that some candidates thought that the focus was about being good at maths rather than liking it. Candidates who stated that the sample was small or was biased got the mark in part (a). Part (b) was really well answered with most candidates pointing out that all the allowed responses were positive (no room for 'rubbish' as several put it). In the final part many candidates were aware of the need to specify a time frame but were rather sloppy in allowing the intervals in their response boxes to overlap or just gave point values rather than intervals. Units of time were often omitted.

1.2.27 Question 27

Part (a) was generally dealt with well by those who understood that $2x + 3 = 10$ meant 'What number when you double it and add 3 gives you 10?. There was little formal algebra, with many successful students showing a process like $10 - 3 = 7$, $7 \div 2 = 3.5$ as they had their calculators. Those that did try a formal method often wrote down $2x = 10$ followed by $x = 5$. Part (b) was done well enough by candidates who knew about the power laws. Part (c) proved a challenge with few scoring full marks. A minority of candidates were able to expand the bracket sensibly to get $-2x - 6y$ or, more rarely $-2x + 6y$. Often they then had problems with collecting the terms. Nevertheless, near misses such as $5x - 2y$ or $5x - 10y$ scored two out of the three marks. Many candidates displayed their lack of knowledge of fundamental algebraic processes by writing $7x - 2 = 5x$

2. STATISTICS

2.1. MARK RANGES AND AWARD OF GRADE

Unit/Component	Maximum Mark	Mean Mark	Standard Deviation	% Contribution to Award
1380/1F	100	58.2	17.1	50
1380/2F	100	64.4	18.5	50
1380/3H	100	46.9	21.6	50
1380/4H	100	55	19.8	50

GCSE Mathematics Grade Boundaries 1380 – November 2010

	A*	A	B	C	D	E	F	G
1380_1F				70	56	43	30	17
1380_2F				77	63	49	36	23
1380_3H	83	65	47	29	16	9		
1380_4H	87	71	55	39	26	19		

	A*	A	B	C	D	E	F	G
1380F				147	120	93	66	39
1380H	170	136	102	68	42			

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