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Principal Examiner Feedback

Summer 2010

GCSE

GCSE Mathematics (2381)

Foundation Calculator Paper (12F)

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1. PRINCIPAL EXAMINER'S REPORT – FOUNDATION PAPER 12

1.1. GENERAL COMMENTS

1.1.1. Candidates found the paper reasonably accessible. There was evidence to show that many did not have the correct drawing instruments to answer some of the questions. Answers which involved basic techniques were generally competently carried out but there was evidence of an inability to work out time intervals and to deal with currency conversions. Candidates showed reluctance to use there calculator to carry out divisions in context or percentages in context.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question 1

There was a great deal of confusion – the word 'congruent was often not known. Candidates often gave E as their answer.

1.2.2. Question 2

Almost invariably correctly answered.

1.2.3. Question 3

Well done, although some candidates interpreted twice as large to multiply be 2 and then add on the original lengths thus making it equivalent to an enlargement with a scale factor of 3. The most common error was to add 2 to each side.

1.2.4. Question 4

The cuboid and the sphere were more known than the pyramid. In many cases candidates gave the answer 'prism' for pyramid. '3D triangle' also was relatively common.

1.2.5. Question 5

These two parts were answered very well with only the occasional misunderstanding, usually with the '10'.

1.2.6. Question 6

Those candidates who had access to a pair of compasses generally had no difficulty with the question. A few candidates used *O* as the centre, but were not penalised.

1.2.7. Question 7

Most candidates knew that the answer to (a) was 75%, but there were many who wrote down 34% from just using the given figures. Part (b) was well answered also, although many candidates thought that the answer was 600 or 6%. Answers to part (c) were generally completely correct or completely wrong. There was confusion over whether this was to be treated as a ratio question $(5+3=8,\ 40\div 8=5)$ or whether it was linked with equivalent fractions $\frac{3}{5}=\frac{?}{40}$

1.2.8. Question 8

All parts of this question were quite well done. There was the usual error in part (b) of giving an answer of 6 or -6 from counting in the zero. On part (c), there was some confusion over whether to go up or down and 2 was a common answer.

1.2.9. Question 9

Candidates usually drew the correct lines of symmetry on the given rectangle, but often went on to put in the diagonals in addition. They were given one mark. Many candidates were able to answer parts (b) and (c) correctly.

1.2.10. Question 10

This proved to be the first challenging question for candidates. Although many clearly did use a calculator to work out $20\div 0.85$, just as commonly were attempts to build up to the answer using some non calculator method (but in many cases using the calculator). So a common approach was to do $10\times 0.85=8.5$ and reach £17 followed by working up to £20. This method often did not work as candidates did not appear to have a calculator. A few candidates did $20\div 0.85$ and then rounded up to get 24. Candidates who got 23 for part (a) were generally successful in completing part (b) correctly. There were two major errors from such candidates, the first was $20-19.55=5$ with a stated answer of 5p or the correct subtraction in pounds followed by 0.45 (no £ sign) on the answer line.

1.2.11. Question 11

Parts (a) and (c) were well done, but as is common on F tier papers, candidates were much less successful when trying to work out a time interval. Some candidates did not read the question carefully and gave an answer of 1 hour 34 min or 1.34 or 1:34. The other common incorrect answer was 174 or 1.74 from treating the time as decimals. Some candidates, who counted on from 07 30 got an answer of 2hr 34 minutes. However, this method generally proved to be the most successful.

1.2.12. Question 12

Candidates who understood how the pricing structure worked were generally successful with both parts of this question. It was common to see $20+30$ for part (a), but also $20+5+5+5+5+5$. Many candidates added the 20 to the 5 and came up with an answer of £150. It was not clear whether this was a Bidmas calculator error or a fault in the understanding. The most common correct approach to part (b) was to divide 45 by 5. Candidates who did this generally got full marks. A few candidates started again with 20 and tried to see how many 5s to add on to get 65 and a few candidates argued that the charge was £15 more than part (a) so the ladder would be hired for an extra 3 days.

1.2.13. Question 13

Although many candidates got full marks there was evidence that in many cases they did not have access to a protractor (although generally they had a ruler).

1.2.14. Question 14

In both parts there was little evidence of any explicit algebraic process although in part (a) especially candidates were using an approach equivalent to adding 3 and dividing by 8. Not surprisingly part (a) was much better answered than (b) where commonly $6y = 27$ was seen.

1.2.15. Question 15

Ratio was fairly well known with many candidates being able to simplify to 1:3. Of course there were some who gave the ratio as 3:1 or as 4:12 without further simplification. Answers to part (b) were often incomplete with £60 being written down instead of the correct 340, from $400-60=340$.

1.2.16. Question 16

Part (a) was well answered although many, of course, gave the answer as 496 from $620\div1.25$. Part (b) proved to be challenging. The most straightforward method was to convert the 50 Euros to pounds by dividing by 1.25, but many candidates were reluctant to do so. Some did convert the £42 into Euros using the same method as part (a) and then did a subtraction to get 2.50 Euros which was often left as the answer. Many candidates were completely unsure and converted both amounts into the other currency or worked out the difference between 50 and 42 and tried to convert that.

1.2.17. Question 17

There were many good attempts at this question. It was pleasing to see candidates getting full marks. One unnecessary loss of marks came from candidates not writing their final answer down correct to 1 decimal place, but to several decimal places. A common error was to misinterpret x^3 as $3x$.

1.2.18. Question 18

Those candidates who had remembered the correct formula – almost always $\pi \times d$ - obtained the correct answer. A few did not realise the value of π was on the front page and used 3.1 or 3.4

1.2.19. Question 19

On the whole, if the candidates knew about Pythagoras then they generally scored 3 marks. Very few scored 1 or 2 marks.

2. STATISTICS

2.1. 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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