Principal Examiner Feedback

Summer 2010

GCSE Mathematics (2381)

Paper 5383H/10

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PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 10

1.1. GENERAL COMMENTS

1.1.1. Good answers were seen to all questions on the paper.

1.1.2. It was encouraging to see that most candidates attempted all questions on the paper although it was clear that some candidates would have been better entering at Foundation level.

1.1.3. Candidates need to be reminded that, when reasons are require in geometry questions, proper mathematical terminology should be used. For example, 'the tangent hits the circle at 90°' is not acceptable when giving the reason why the angle between the tangent and radius is 90°.

1.2. REPORT ON INDIVIDUAL QUESTIONS

1.2.1. Question 1
In the main, candidates worked out either the volume of the carton and the small box and then attempted a division or else worked out how many of the small boxes would fit along each edge. Of those who used the volume approach the volumes were frequently worked out incorrectly, often one or other was a power of ten out. Some candidates started out by using corresponding faces and working with areas but then forgot to use the third dimension so typically gained one mark out of the three available.

1.2.2. Question 2
In part (a) the majority of candidates were able to provide the correct answer although the negative sign caused some confusion for weaker candidates. Part (b) was well done, the error that occurred most frequently was to forget to multiply the 2 by 4.

1.2.3. Question 3
Responses to this question clearly showed that many candidates are still unable to use their calculator correctly. The most common incorrect answer which appeared more frequently than the correct answer came from evaluating $6.2^2 \div 7.3 - 2.54$ rather than $6.5^2 \div (7.3 + 2.54)$. Some candidates correctly evaluated the numerator and denominator separately but even this approach frequently lead to errors with, at times, 6.5^2 being evaluated was 13.

1.2.4. Question 4

Many candidates were able to score full marks in this question. Common incorrect answers from those who gave their answer as powers of 7 was to multiply the powers in (i) and divide the powers in (ii). Some candidates simply evaluated the two expressions rather than giving their answers as powers of 7.

1.2.5. Question 5

Candidates were split as whether to multiply or divide the figures given in the question. Those who choose the correct method of multiplication then often misunderstood the units and attempted to multiply or divide by 100 or 1000 as well. Another misunderstanding of the units occurred when candidates attempted to use 4^3 rather than just 4.

1.2.6. Question 6

In this question many candidates clearly did not understand the phrase 'How many times bigger' and just worked out how much bigger the population of Italy is than San Marino by attempting to subtract the given populations. Those who recognised that they had to divide sometimes made errors by attempting to take the numbers out of standard form.

1.2.7. Question 7

Success here was very varied, many fully correct answers were seen.

1.2.8. Question 8

The majority of candidates were able to score at least one mark by either identifying angle *OAC* as 90° or working out angle *OAB* or *OBA*. It was clear from subsequent working that some candidates were unsure which angle they were meant to be calculating – giving the size of angle *OAB* or *ACB* was a common incorrect answer. Some indicated angle *BAC* to be 90 degrees; more care is needed in drawing the 90 degree symbol if this is to gain credit on the diagram. Of those candidates who did give the correct answer of 50°, most did not give reasons for all stages in their working, most commonly omitting the use of the fact that angles in a triangle sum to 180° or that a tangent meets a radius at 90 degrees; inclusion of all three elements are expected so a vague reference to tangents meeting a circle at 90 degrees was not good enough.

1.2.9. Question 9

The minority of candidates that realised the need to factorise the expressions in the numerator and denominator were generally able to score a mark. Many candidates simply attempted to incorrectly cancel, for example, x^2 in both the numerator and denominator without factorising. A few candidates who factorised both expressions correctly and then cancelled went on to incorrectly give the reciprocal of the correct answer.

1.2.10. Question 10

The most common incorrect method was to take 3 consecutive numerical examples and show that the sum was a multiple of three. This approach scored no marks. It was pleasing to see some fully correct solutions. Some candidates were able to write down three consecutive numbers algebraically, usually x, $x+1$ and $x+2$ and often go onto add these but then were unable to show that their result was a multiple of 3 – the most able candidates took out 3 as a common factor.

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