

Principal Examiner Feedback

November 2010

GCSE

GCSE Mathematics (2381)

Paper (5383H_10)

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1. PRINCIPAL EXAMINER'S REPORT - HIGHER PAPER 10

1.1 GENERAL COMMENTS

- 1.1.1 In general there were pleasing aspects to the performance. Standard form was generally well understood, as was expansion of brackets. Simplification of algebraic fractions has also improved.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

Most candidates at this tier had no difficulty in getting the correct answer. They either wrote down the answers to the numerator and denominator separately and then finished the calculation off or put in brackets at the correct place or had a calculator into which they could type the whole given expression and then work it out in one operation. Of course, there were still candidates who ended up with 60.50... from just typing all the expression without regard for operator precedence. Candidates were less successful with part (b) where they had to write their answer correct to 1 significant figure. Many wrote down 3 figures (force of habit?) or 1 decimal place.

1.2.2 Question 2

This question was generally efficiently done - as it must be to have a chance of a decent showing on this paper.

1.2.3 Question 3

Although part (a) was well done, there were still a surprising number of candidates who either did not know the expression 'height \times width \times length' or could not apply it when one of the measurements was missing and the volume given. There were many cases of 60 - 20 and use of half the cross-sectional area. Part (b) was also well answered but not with the success of part (a). Candidates made more sophisticated errors than those seen on the corresponding question on the Foundation tier. So, for example, some candidates thought that there had to a cube or cube root somewhere.

1.2.4 Question 4

The vast majority of candidates could expand at least one bracket correctly and then go on to collect the terms together. Some, however, could not do this accurately and ended up with $5x - 1$. A few were confused with what to do with the brackets, ignored the + sign in between them and tried to multiply them out as $(3x+3)(2x-2)$

Part (b) was generally well done as candidates have had plenty of exposure to this type of question. Candidates who got 1 of the 2 marks usually showed $x^2 + 5x + 6x + 11$ at some stage of their working, or got the correct answer of $x^2 + 5x + 6x + 30$, but then made mistakes in the simplification (for example ending up with $11x^2 + 30$).

Some students gave an answer of $x^2 + 11 + 11$ (or 30) without noticing the obvious error.

1.2.5 Question 5

A major stumbling block on this question was that it required candidates to know that distance = speed \times time. Students who knew this and wrote down $8 \times 10^4 \times 3 \times 10^8$ or an equivalent in figures were rewarded. It should then have been a case of picking up the calculator and working it out in standard form. Of course, some students misread their display and wrote down 2.413, although this was comparatively rare. It was pleasing to see students who worked it out mentally as 24×10^{12} and go on to write the correct answer.

1.2.6 Question 6

This question proved to be challenging for many candidates. There were several major deficiencies in solutions. The first was that many could not use mathematical language correctly - for example, they could not use the 3 letter notation to describe an angle. Consequently, candidates who stated 'the angle at B is equal to the angle at A' were unlikely to gain any credit, because there were several angles at B. The second was that although most candidates knew there should be a right angle somewhere, often it was marked as the angle CAB or even the angle CBA. The third was that some candidates thought that they had to find a value of x , with 45 and 30 being the favourites. Many candidates could not spot that the triangle was isosceles as two of the sides were radii of the circle. Lastly, there was a real looseness in the vocabulary - a comment needed to be made that the angle between the tangent and the radius is a right angle. All too often comments were written such as 'the tangent hits the circle at a right angle'.

1.2.7 Question 7

Another proof question, although a standard one. For full marks, candidates had to show correct notation in their proof that the decimals

were recurring and that they got to the fraction, $\frac{57}{99}$, or equivalent, which they could then cancel down to get the given fraction. Many candidates seemed to be unaware of this and casually wrote down a few (usually 4) figures. A few candidates could set of a neat proof but in many cases the algebra was confused. The good candidates wrote

something along the lines of $x = 0.\dot{5}\dot{7}$ followed by the correct expression

for $100x$ and then $99x = 57$ followed by $x = \frac{57}{99}$.

1.2.8 Question 8

Answers to this question were very pleasing with many candidates knowing that they had to factorise the numerator and denominator and then follow up by cancelling a common factor. Many got to the correct answer but then spoilt things by cancelling the xs to end up with an

answer of $\frac{1}{2}$.

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	21.5	5.8	20
5381H/06	30	17.3	7.1	20
5382F/07	25	15.7	4.1	15
5382H/08	25	14.8	5.5	15
5383F/09	25	13.4	5.2	15
5383H/10	25	15.4	5.6	15
5384F/11F	60	33.2	10.5	25
5384F/12F	60	39.4	11.5	25
5384H/13H	60	28.8	11.8	25
5384H/14H	60	37.6	10.6	25

GCSE Mathematics Grade Boundaries for 2381- November 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				27	22	18	14	10
UMS (max: 80)	72	64	56	48	40	36		
Paper 5381H	29	24	17	11	7	5		

Unit 2 Stage 1 - 5382

	A*	A	B	C	D	E	F	G
UMS (max: 41)				36	30	24	18	12
Paper 5382F				21	17	14	11	8
UMS (max: 60)	54	48	42	36	30	27		
Paper 5382H	23	19	15	11	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				19	15	11	8	5
UMS (max: 60)	54	48	42	36	30	27		
Paper 5383H	24	21	16	12	8	6		

Unit 3- 5384

	A*	A	B	C	D	E	F	G
5384F_11F				41	33	25	17	9
5384F_12F				49	40	31	23	15
5384H_13H	51	40	29	19	10	5		
5384H_14H	58	48	38	29	17	11		

	A*	A	B	C	D	E	F	G
UMS (max: 139)				120	100	80	60	40
5384F				90	73	56	40	24
UMS (max: 200)	180	160	140	120	100	90		
5384H	108	88	68	48	27			

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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