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Principal Examiner Feedback

November 2010

GCSE

GCSE Mathematics 2381

Higher Non-Calculator Paper (13H)

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1. PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 13

1.1 GENERAL COMMENTS

1.1.1 There were fewer instances of candidates failing to show working out, but it was clear that too many candidates tried performing calculations in their head, without setting out what they were trying to do.

1.1.2 There was a general weakness in attempts at questions towards the end of the paper. A minority of candidates showed any real understanding of these topics. Whilst it may be the case that they have concentrated on easier topics, it must be discouraging to have to take a paper in which they are unable to gain marks on so many questions.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

Most candidates correctly worked out the answer. Some incorrectly divided by 3.

1.2.2 Question 2

Most candidates understood that they needed to multiply by 200. However, it was disappointing to find so many quoting 1 m = 10 cm or 1 m = 1000 cm. It was also the case that too many candidates failed to give the units with their answer, thereby losing a mark. A correct answer in either cm or m was acceptable.

1.2.3 Question 3

Most candidates gained at least one mark; the most common error was inaccuracy in drawing the angle. Very occasionally triangles were incomplete.

1.2.4 Question 4

Most candidates divided by 5 and multiplied by 3, but some had difficulty in performing this division, with answers of 13 and 14 being seen.

1.2.5 Question 5

Nearly all candidates gave the answer of B, but some gave an incorrect shape of D as their second shape.

1.2.6 Question 6

Many recognised that a rotation had taken place but many spoiled their response by describing an additional transformation in their explanation, usually a translation. The angle of rotation was usually given, but the centre less frequently.

1.2.7 Question 7

There were many attempts at finding 17.5% of £6000 using 10%, 5%, etc., although some candidates incorrectly stated that 10% of 6000 was 60. Those candidates who tried to calculate 0.175×6000 or 1.175×6000 often made errors in their calculations,. Of those who gained the method mark for finding the VAT, many gained the next method mark for adding the VAT to £6000 and were able to complete their solution competently. However, a significant number of candidates subtracted the £3000 initially and tried to find 17.5% of £3000 and therefore could only be awarded credit for the division by 10.

1.2.8 Question 8

This was well answered by many. The two most common errors made were either to divide 180° by 5, or to write 360° as the sum of angle of a triangle.

1.2.9 Question 9

In part (a) there was much confusion as to whether the circle was to be shaded in, or not. It was not uncommon to see circles over 0 or 3.

In part (b) the confusion was over which signs to use, though -2 and 3 were seen regularly.

In part (c) many candidates progressed the solution through to the number 4, many writing the answer as t=4, or t<4.

1.2.10 Question 10

Many correctly rad off the graph and knew the figures 16 and 30 were needed to calculate the speed, but some incorrectly used 30÷16. Those candidates who established a connection between 16 and ½ often made an error in 16 ÷ ½ = 8, a common incorrect answer.

1.2.11 Question 11

In part (a) two distinct methods were seen. Some candidates who chose to deal with the whole numbers first. Some subtracted numerators and denominators to give an incorrect answer. Other candidates chose to convert the mixed numbers into improper fractions. Many established a common denominator, but then found it difficult to find a numerator to match.

In part (b) a minority of candidates were unsuccessful as they tried to deal with the whole numbers first, often leading to an answer of $2\frac{6}{12}$.

Many correctly converted one of the mixed numbers to an improper fraction, but again the problem was then matching numerators and denominators.

1.2.12 Question 12

In part (a) there were many incorrect attempts at Pythagoras. Other candidates appeared to guess a value for DC so they could have a value to work with in part (b). Others established a connection between the 10 and the 5 and decided that the scale factor was 2, thereby stating DC=16cm.

In part (b) candidates lost possible marks by not showing sufficient working. Follow-through marks from (a) were only available when the working was clear. Some worked on the diagram; many split the trapezium into a rectangle and a triangle but often made an error when calculating the area of the triangle.

1.2.13 Question 13

Most candidates tried to make the coefficients of x or y the same, with only minor errors, usually involving the number term. However a significant number of candidates then chose the wrong operation leading to, in most cases, 0 marks. Of those who chose to eliminate the y term, the majority stated 26x=13, only for some to incorrectly state that x=2.

1.2.14 Question 14

The incorrect factorisation of (x + 8)(x – 1) was seen frequently. Some tried to use the quadratic formula but a small number earned full marks. Those who used trial and improvement could only find the solution x=1. Of those who arrived at the correct factors, it was not uncommon to see the bracketed terms left on the answer line rather than the solutions.

1.2.15 Question 15

This question was poorly answered, with little understanding shown of an "inverse proportion"; the most common incorrect expression seen was P=v-3.

1.2.16 Question 16

This was not well answered. Very few candidates stated that OP=a+b. Some wrote a+b÷21 on the answer line, which was ambiguous. Some gained some credit in part (b), following through an incorrect answer in part (a). Attempts at Pythagoras gained no marks.

1.2.17 Question 17

Only a few recognised x2+y2=9 as the equation of a circle. Circles with a radius of 3 were seen occasionally, some drawn freehand and not always within normal tolerance. Attempts at drawing parabolas were seen but it was more usual to see the straight line x + y = 3.

In part (b) attempts to draw the line x + y = 1 were more successful but many variations were seen.

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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