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GCSE

Mathematics A

General Certificate of Secondary Education **GCSE J512**

Report on the Components

January 2009

J512/MS/R/09J

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This report on the Examination provides information on the performance of candidates which it is hoped will be useful to teachers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding of the syllabus content, of the operation of the scheme of assessment and of the application of assessment criteria.

Reports should be read in conjunction with the published question papers and mark schemes for the Examination.

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GCSE Mathematics A (J512)

REPORTS ON THE COMPONENTS

Chief Examiner's Report

General Comments
This is the first January sitting of the two-tier J512 syllabus. It has also been the first opportunity for centres to enter students at both Foundation and Higher tiers at this time of year. It was apparent that many centres had opted to enter some or all of their Year 11 students early, leading to an increase in the candidature for this syllabus. Pleasingly, in general, students have been entered at an appropriate tier.

Work produced was of a very good standard at both tiers; there were many high scoring candidates. Working was well presented and easy to follow. In general, candidates had access to the required equipment, including a calculator where appropriate. There were a significant number of candidates who omitted some of the questions; perhaps it was the case that some centres only taught these candidates certain parts of the specification.

Arithmetic and algebra are areas of weakness for a number of candidates. There needs to be more practice of basic arithmetic to eliminate unnecessary errors. Stronger candidates must be discouraged from using trial and improvement methods as a solution to equations.
Work on Shape and Data Handling continues to be sound.

New coursework submitted by candidates was of a pleasing standard and showed a competent level of mathematics and the ability to communicate this effectively. A good standard of marking, with appropriate script annotation, and moderation of coursework by centres has taken place. There were noticeably fewer than usual administrative problems.

Centres should note that from June 2009 candidates are not required to complete coursework tasks for GCSE Mathematics.

J512/01 Paper 1 (Foundation Tier)

General Comments
The paper was well done by the majority of candidates with many scoring very high marks.

There was no problem with candidates having insufficient time to complete the paper although some of the weakest candidates did not attempt the harder questions.

The candidates were generally well equipped. Stronger candidates were able to present their work in a way that enabled part marks to be awarded.

Comments on Individual Questions

1 This was a very accessible start to the paper with many candidates scoring full marks. Having the possible solutions on the page meant spelling was not a problem. The common errors were the confusion of the rhombus with the trapezium, considering the rhombus as a square or not knowing the type of triangle shown. All candidates correctly recognised the circle.

2 Parts (a) and (b) were very accessible to the majority of pupils. A small minority reversed the coordinates.
In part (c) credit was given for a correct comment even if some spurious statement was also made. References to 'lines of best fit' were not uncommon. Some candidates tried to give the correct midpoint, or even correct F or G. This was given credit provided it was correct.

3 This question differentiated well and most candidates were able to score some marks. Weaker candidates managed the 50%, 0.25 and 25% although the weakest gave 0.4 and/or 40%. Only the better candidates were able to give 3/10 and, less often, 9/100. 1/3 was a common error for 3/10.

4 Many candidates scored full marks in this question and it was pleasing to see a sound understanding of probability concepts. There were some 'impossible' responses seen for part (c) but part (d) caused the most difficulty where it appeared weaker candidates misunderstood the logic of the sentence.

5 Most candidates managed parts (a) and (d) with slightly fewer understanding what a square number was. However weaker candidates had not realised that part (d) was a hint for part (e) and confused factors and multiples in parts (b) and (e).

6 This was done well with most candidates able to recognise the patterns. The main problem was in the description of the rules especially in part (b). Those candidates who used the next term to describe the relationship did not answer the question e.g. 'half number in front added to itself'. Sometimes the better candidates tried to be more mathematical and write their answers as a formula but gave the wrong one e.g. $6n+1$ and n^2. A few thought part (a) was 'plus 5' or 'plus 7' i.e. counting the numbers in between or including both numbers in the sequence.

7 Part (a) was the most poorly answered question on the paper; some recognised that they did not know and gave no response but the majority thought metric and gave answers that were powers of 10 – most commonly 100 or 1000. Only around 5% of candidates scored here.
In part (b) there was generally a good understanding of the necessary processes but, rather than a division, it was more common to see a build up of values e.g. 50km = 30m, 100km = 60m etc. This approach did lead to more errors.

8 This question was generally done well although weaker candidates struggled on the explanation in part (b), and part (d).
Part (a) was rarely wrong.
In part (b) a few candidates were confused between greater and less than and some thought the answer had something to do with squaring.
Part (c) was often correct with 75 being the most common wrong answer.
Many candidates answered part (d) correctly; of those who did not score 3 marks, many scored 2 or 1 for partial understanding.

9 Most candidates coped well with parts (a) to (c), but part (d) caused some problems. There were some embedded solutions that scored full marks, but this was often spoiled by leaving the variable in the equation.
Many candidates scored 1 mark in part (d) for the first step of subtracting 6 from 21, but then could not cope with the dividing by 10 step, often giving an answer of 5. Many candidates gave 5 with no visible working and this scored 0.

10 Part (a) was answered correctly by many candidates. Common errors were: misreading the scale, not using a ruler, drawing multiple lines or plotting the points but not drawing the line.
In part (b) the conversion of Pounds (£) into Rand was good.
In part (c) many candidates gave an answer within range but a few were awarded only 1 mark as very little method/working was seen.

11 There were many fully correct solutions seen. Common errors were to double or halve 8 x 5 in part (a)(i), or to reverse the answers of the area and perimeter. Part (b) was done well with the common wrong answer being 10 and 4.
Part (c) caused the most problems with the area of the 'second rectangle' being divided by 2 rather than 4. Some candidates who knew they needed to divide each dimension by 2 went on to add the results of these divisions.

12 In part (a) a significant number of candidates knew that the range was the difference between the highest and the lowest values but many gave the answer 2 –14 instead of calculating the correct figure. Answers that were the mean value and the median were also present.
In part (b) many candidates knew what was required but some careless adding up was seen. Answers of 54 (the total), and 4 (the median) were also present.

13 In part (a) many candidates scored both marks. Of those who did not, not all had written down the actual measurement of the line so were unable to score the method mark.
In part (b) plenty of responses were in range and 70 was a common 'close' answer. Some candidates were unable to correctly use a protractor; the incorrect answer 150 being seen quite often.
Part (c) proved more challenging with fewer candidates scoring both marks. Of those who did not, the correct length was seen more often than the correct angle. The most common bearings seen were 010° and occasionally 350° suggesting that many candidates had not realised the need for 0 on their protractor to be at north.

14 In part (a) 40 was a common response even when 10 x 10 x 10 x 10 was seen in the working.
Part (b) was poorly done by many candidates, many divided by 3.
In part (c) 12 + 12 = 24 was a common error, many more candidates added the terms with the answer 10^5.
Part (d) was rarely fully correct. When 5/60 was obtained it was often spoiled by poor cancelling with 2.5/30 being a common error. Many could not cope with the initial multiplication with 'cross-multiplication' common, giving 6/50.

15 More able candidates achieved 8 marks here; they knew neat and concise methods for all three parts.
In part (a) most candidates understood the need to find how many 30s were in 220 and most counted up in 30s to reach 210. This gave them 2 marks for the answer 7 hours. However they generally did not know what to do with the remainder of 10, hence 7hr 10 minutes was very commonly seen.
In part (b) weaker candidates tried to find 10% or 1% and subsequently 5%, but their numerical skills often let them down.
In part (c) only the more able candidates realised they had to divide by 5.

16 In part (a) most candidates plotted well, but some were unable to keep to the correct ordinate due to the distance from the axes.
In part (b) most candidates got the mark for 'positive' but 'strong' was often missing. Weaker candidates described the relationship in terms of age and higher mileage.
There were some poor attempts at the line of best fit in part (c)(i) with a ruler not being used even when used for previous questions. Drawing the line from the top right coordinate to the origin was a common mistake.
Most answers to part (c)(ii) were within range even if a poor line graph was drawn.

17 More able candidates scored well and presented their method clearly. However, common errors were 2 x 2.5 = 4.5, 1 x 2 = 3, using cm² as units and ignoring units altogether.

18 Better candidates generally scored well throughout this question. Weaker candidates often failed to respond.
In part (a) common wrong answers were 5*xy* and 7*xy* (from assuming both 3*xy* and 4*xy* were to be subtracted) as well as the answer left as $-xy + 4xy$ or $6xy - 3xy$.
For part (b) 5*a* and/or 9*b* were given as answers by all levels of candidate but then often spoiled by multiplying them together, squaring *a* and *b* or writing $a^5 + b^9$. Some candidates left their answer as 9*b* and/or 5*a*. A few multiplied 2*a* x 3*a*, etc.
There was a lot of confusion in part (c) over what to do with the 2 before the second bracket: it was often added to 6x + 15 as well as being used to multiply out the second bracket. An answer of 14x + 17 was common. A few candidates tried to expand (6x + 15)(8x – 2) as a quadratic. Many weaker candidates started by adding 2x + 5. It was pleasing to be able to award the method mark for clear working on many occasions.

19 Full marks were rarely awarded here. Most candidates were able to score 1 mark for rounding of two terms – usually 5.8 and 0.47. 5.8 was sometimes truncated to 5, and dividing by 0.5 was usually attempted by halving the product of 110 and 6. Some candidates attempted long multiplication and division scoring no points after much working.

20 There were few candidates who scored full marks in both parts of this question.
In part (a) few candidates understood translation, and those that had an idea could not interpret the vector correctly.
In part (b) most candidates believed enlargement obviously means make it bigger and if the centre has to be (0,0) then the origin must be part of the triangle. Only a small number of candidates scored 1 mark, often for a correctly sized Q but in the wrong position, commonly with the bottom left coordinate at (0,0).

J512/02 Paper 2 (Foundation Tier)

General Comments

General impressions were that candidates found the paper very approachable and were well prepared for it. There were a lot of good scripts.

All questions were attempted well by the majority of candidates, and there were no questions which candidates uniformly found difficult. Naturally, the questions overlapping with the Higher Tier paper were answered less well, but that did not stop many of the better candidates scoring well on them.

It was noted that some candidates did not necessarily have the correct equipment for the exam, notably geometrical instruments, but also in some cases calculators.

Comments on Individual Questions

1 This question was generally done well, although among the weaker candidates written English appeared to be a problem. “Forty thousand ...” was the most common error in part (a) while in part (b) 3504 was frequently seen. Parts (c) and (d) were almost always correct.

2 In part (a), a common error was to give the answer as a fraction ($\frac{1}{4}$) rather than as a percentage.
Most candidates scored at least one mark in part (b) and there were a lot of fully correct answers.
In part (c), although generally correct, some unusual wrong answers were seen including such things as 3.4 and 0.34.

3 This was done very well by most candidates. Some did confuse millilitres with millimetres in part (c) and there was the occasional script with such errors as kilograms in part (b) but grams in part (e).

4 This question was answered well by most candidates. However, some candidates did not mention ordering the data in part (b), while others described how to find the mean rather than the median.

5 Most candidates earned full marks for part (a), although using repeated subtraction in part (a)(ii) rather than the quicker method of dividing 10 by 1.45 did sometimes lead to errors.
Most candidates also earned full marks for part (b) but a common wrong answer was to find the discounted price of £10.80 rather than just the discount itself of £1.20.

6 Part (a) was done well by most candidates.
Some candidates wrote the answers for both parts (b) and (c) together in the answer space for part (b), often drawing an angle whose vertex coincided with the circle’s centre. Many freehand circles were seen, but a lot were within the tolerance for the radius. A sizeable minority of candidates marked their X at the centre of the circle rather than on the circumference.
There were lots of correct lines of symmetry in (d), although plenty of candidates then proceeded to spoil their answers by including diagonal lines as well.

7 There were lots of fully correct answers to this question among candidates of all abilities. Some did have trouble with the negative input in part (a)(ii). The common wrong answer of 5 for this part suggests an input of 4, rather than -4 was used. Some candidates omitted the plus signs in the flowchart in part (b).

8 Weaker candidates always find algebra questions like this a problem. Partially worked answers of $7y + 2y$ in part (a)(i) and $3x + 4x$ in part (a)(ii) caused a loss of two marks. Many responses to part (b) contained expressions with letters, e.g. $6f + 10g$, indicating that while they appreciated the order of operations, some candidates did not realise that the letters were to be replaced by numbers. Another common error in part (b) was to write $3f + 2g = 32 + 25 = 57$. Part (c)(i) produced some equally baffling wrong answers such as $x = 40$, while a correct answer to part (c)(ii) was occasionally spoiled by writing $y + 12 = 12y$.

9 The first two parts were usually well done.
In part (c), most candidates who had the wrong answer had not set out the calculation correctly ($145 \times \frac{3}{5}$) and consequently could not score a method mark either.
Part (d) was rarely done by the method expected, i.e. 0.29 x 4.35. There was a surprising number of candidates who tried to break down the calculation into finding 10% of 4.35, then 20%, 5% and 1%. These were very often rounded and hence scored no marks. The method mark in this case could only be earned if they gave the exact values of these various part percentages before attempting to add the right combination of them.

10 Common wrong answers in part (a) were 90° and 25%. Clearly candidates were failing to read the question with sufficient care.
While part (b) was usually correct, there were still some candidates who chose to ignore the clear instruction 'NOT TO SCALE' and measured the right angle as 88° and so finished with the wrong answer.
The correct answer of 24 in part (c)(i) was a bit of a rarity.
Some candidates were able to rescue a mark in part (c)(ii) by restarting and using 48/360, despite getting (c)(i) wrong. Errors in part(c)(ii) included dividing their answer to part (c)(i) by 100 or 360 instead of by 180. There was also the usual problem in part (c)(ii) of expressing probabilities incorrectly as ratios.

11 The correct answer of 50 in part (a) was the most frequent, although 60, 70 and 110 were common errors.
Of the next three parts, (b) was the least well answered, with many candidates mentioning the line was steep but not comparing that steepness with other parts of the graph, preferring instead to give distances travelled and times taken. Parts (c) and (e) were correctly answered by many, but a common error in (d) was to state that Andrew had arrived at his Aunt's house rather than his own.

12 Part (a) was usually answered correctly.
In part (b)(i) many candidates appeared to assume that the triangle was isosceles and therefore gave an incorrect answer for t of 37°.
In part (b)(iii), some irrelevant answers involving angles in a triangle or angles on a straight line were given, perhaps because these often are the reasons to explanation type questions of this kind. Others gave an answer such as "$x + y = z$" without appreciating the need to use the numerical values for these three angles. Consequently they scored zero for this part.

13 The correct answer of 5 was pleasingly common, although 4 did appear frequently as well with candidates losing count of the number of days.
In part (b), most candidates got as far as finding the amount of money Tony kept for himself as being £440, but then often guessed what fraction of £800 this was. The alternative method of working solely with the fractions rather than the amounts of money was seen much less frequently, and even less frequently was it worked correctly. Common errors included $\frac{1}{4} + \frac{1}{5} = \frac{2}{9}$.

14 This was the best answered question on the paper. Only the very weakest candidates failed to score full marks here.

15 It was clear that some centres had not covered stem and leaf diagrams. For those that had, the most common error in part (a) was to omit the key, although there were also a lot of unordered diagrams. These inevitably led to errors in calculating the median in part (b).
Many of the comments in part (c) contained correct statements but did not make comparisons as requested in the question. Some candidates made meaningless comparisons of the median with the range.

16 There were few correct answers to either part of this question.
In particular, it was common to see an answer of $n + 4$ in part (b).

17 In part (a), many candidates were able to work out both angles correctly but were unable to give a valid reason. The correct terminology for either reason was rarely seen, with 'Z shape' being commonly used for angle *a*, although 'opposite' for angle *a* was more frequently seen than 'alternate' for angle *b*.
In part (b)(i) the preferred solution of observing that the pentagon could be split into three triangles was rarely seen. More common was to see the pentagon split into a triangle and a quadrilateral. Many candidates scored only a single mark for a statement such as 540 ÷ 5 = 108.
Most candidates proceeded, in part (b)(ii), to ignore the statement about the sum of angles of a pentagon given in part (b)(i), preferring instead to produce invalid methods of calculating angle *c*. Subtracting from 360° instead of from 540° was the most common error. Forgetting to include the right angle was also common. Part (b)(iii) was rarely done correctly. Most candidates multiplied (or divided) by a factor of 10 with 45 being the most common wrong answer.

18 Again, only the best candidates scored full marks on this question. It was very common to see answers of t^{14} and p^3.

J512/03 Paper 3 (Higher Tier)

General Comments

A very pleasing standard of work was displayed by many candidates. Presentation was clear and work was well structured allowing marks to be awarded for a correct method used even when the final answer was incorrect. Fewer candidates were incorrectly entered at this tier and subsequently there were fewer low scores.

As expected, the first half of the paper was answered well with success tailing off towards the end. Candidates' attempts at the algebra questions were generally unfruitful except for the less demanding ones. This is an area of concern. More confidence was shown in attempts at Data Handling and Shape and Space questions. Less able candidates still have some problems with basic arithmetic. Unfortunately this deficiency spills over in their attempts to answer questions across the syllabus.

Candidates appeared to have enough time to answer the question paper with many attempting all questions set. What is surprising though is the number of candidates who missed questions out with no attempt; perhaps where centres had not covered the whole syllabus.

Comments on Individual Questions

1 This question was answered well by the majority of candidates. In part (a) some found problems in dividing 220 by 30 and gave 7 hours 10 minutes as their answer. Poor arithmetic in part (b) spoiled some answers. Part (c) was probably the best answered part.

2 Candidates' knowledge of scatter graphs is sound. A few did overlook part (a), above the grid. In part (b) some failed to comment on the strength of the relationship.

3 Again, the majority of candidates scored well in this question. Errors occurred in part (a) when some failed to deal with the 'double negative' adequately.
There were many correct answers to part (b) though often these were found without the use of any algebra.

4 Many candidates scored full marks on this question. There was a very small number who multiplied by 2 instead of dividing by 2, and vice versa.

5 Better candidates found little difficulty with any part of this question. In part (a) it was not uncommon for the units to be omitted or to be given incorrectly as cm^2. Less able candidates added lengths to find areas and for some arithmetic was a problem. Multiplying 2 and 2.5 to give 4.5 or 4.10 was disappointing to see. Scale drawings in part (b) were, in general, of an excellent standard though inaccuracy in measurement in part (c) often led to an answer outside the acceptable range.

6 This more straightforward algebra question was well answered by most candidates. Each part did pose its problems to a few. In part (b) $5a + 9b$ were combined to give $14ab$ on occasion and in part (c) the second term in each bracket escaped from being multiplied.

7 Candidates knew to round the values before performing the calculation. Dividing by 0.5 was a big problem for many; they ended up halving the numerator instead of doubling it.

8 Few candidates had any problem with part (a) and successfully completed the translation. In part (b) many completed the enlargement but by a scale factor of -1/2. Others knew that the triangle would be half the size but did not know where its position would be. Of these the majority of candidates put it at the origin, in the first quadrant.

9 Most candidates correctly substituted the values into the cubic expression but few could evaluate these successfully. Even when the arithmetic was correct, only the brightest candidates knew that one value above zero and one value below zero signified that the solution was between 2 and 3.
In part (b) again some failed to multiply both terms inside the bracket. A large number of candidates replaced the inequality sign by an equals sign and solved the equation. This practice should be discouraged by centres.

10 Average or better candidates coped well with this question on standard form. In part (a)(i) many candidates lost the second 5 when writing their answer and in part (a)(iii) a significant number wrote their answer as an ordinary number.
Part (b) was most successful though there were still many incorrect answers of 4×10^4.

11 Poor attempts were made by virtually all candidates. All did know to draw a circle, centred at A, but very few knew they had to bisect angle ABC. Only a handful of candidates found the required points.

12 Although identifying the point of intersection in part (a) was commonplace, many could not draw the required line in part (b). The solution to part (b) was often found using trial and error methods.

13 Explanations for part (a) were very disappointing. Nearly every candidate said that the line did not go through the centre of the circle. Only better candidates referred to the angle in a semi-circle property. Candidates fared a little better with parts (b) and (c), giving correct numerical answers, and by this stage many had realised that they had to refer to circle angle properties. There were a surprising number of references to the 'bow tie' rule or the 'cats ears' rule in candidates' explanations. Whilst giving candidates a means of identifying the correct shapes inside the circle, centres must insist on the proper references to the circle angle properties.

14 Many candidates could find the cumulative frequency values and plot the points appropriately. Some weaker candidates plotted at the correct heights but at the wrong position and others tried to draw a bar chart based on the cumulative frequency values. There were fewer correct answers to part (c) than expected. A large number of candidates worked from an amount spent of £50, rather than a cumulative frequency value of 50, to find the median.

15 The higher level algebra in this question caused problems for many candidates. Some did not even recognise that two pairs of brackets were required in part (a)(i) and gave answers like $x(x + 7) + 12$. The technique of difference of two squares is becoming more familiar to better candidates but its execution is still poor. There was much more success with part (c) for many candidates, although errors in collecting terms were rife.

16 A good number of candidates knew to multiply the two numbers in part (a) though many left their answer as $\sqrt{100}$. Part (b) was rarely answered correctly as the vast majority tried to use a similar 'method' to the one in part (a) and ended with an answer of $\sqrt{52}$.

17 This was the worst answered question on the paper. A tree diagram may have helped but few candidates saw this avenue. Multiplying any probabilities was seen only rarely. Responses to this question were very disappointing.

18 Most candidates knew that they needed to find two volumes and divide them. Using the correct formulae and then performing the correct arithmetic proved to be a more difficult task. $\pi 3^2$ was commonly used for the volume of the glass as was 4×15 for the volume of the liquid in the bottle. Only the best candidates found the correct answer of 13.

19 Many candidates showed little knowledge of indices in their answers. Few knew that $2^0 = 1$ and even fewer knew that $2^{-2} = \frac{1}{4}$, using -4 instead.

20 There was a common understanding that the *y* needed to be eliminated between the two equations. Few candidates knew the more straightforward substitution method and opted for rearrangement, multiplication and subtraction of the two equations. Since algebraic manipulation is never a strong point for candidates it is unsurprising that many errors were made in their attempt to follow this method. Some gave in and found a solution by trial and error.

J512/04 Paper 4 (Higher Tier)

General Comments

It is felt that this paper differentiated well between candidates. There were some outstanding candidates, but equally there is evidence that some candidates were inappropriately entered for the higher tier paper.

There is some evidence that not all parts of the specification were taught by all centres.

It is pleasing to see that candidates showed the methods they used in almost all questions.

Comments on Individual Questions

1 This question was generally answered very well by nearly all candidates.

2 Almost all candidates scored full marks on this question.

3 Able candidates scored highly on this question. Weaker candidates commonly chose to solve the equations by a 'trial and improvement' method.

4 In general this question was answered well, though some candidates did not complete the key. The values for median and range were almost always correct. In part (c) candidates who chose to compare the range did not always clearly indicate which range was the greater.

5 This question was answered well by better candidates. In part (a) the common error was to use the previous result as the next value for n, obtaining 3, 11 and 123. In part (b) weaker candidates just found the next term without attempting the nth term. The common wrong answer for the nth term was $n + 4$.

6 In part (a) the majority of candidates found the size of the angles correctly, but were not always able to express correctly the reason why. Part (b)(i) was more mixed with a number of mathematically elegant answers while other candidates believed it was acceptable to state that the answer was 540° (as given in the question). Part (ii) was generally attempted well with common errors being forgetting to add 90°, or subtracting from 360°. There were few correct answers in part (iii), the common response being 45.

7 Part (a) was generally done well with most candidates using correct algebra to find the solution. In the remainder of the question a significant number of candidates showed that they could generate a factor tree, but had no idea what to do with it.

8 The earlier parts of this question were generally answered well. Some candidates plotted points in part (b) but failed to draw a curve through the points and either did nothing or drew a straight line through the origin. Part (d) was either not attempted or incorrect.

9 There was a mixed response to this question. Candidates did not always give a full explanation in part (a), and in part (b) confused 'show' with 'explain'. Parts (c) and (d) were better attempted.

10 More able candidates scored well on this question.

11 Answers to this question were varied with some candidates omitting one or more of the question parts. Most candidates used their answer to part (a)(i) in part (a)(ii), but either chose not to use the formula or did not calculate the area of the whole trapezium. Parts (b) and (c) discriminated well between the able and more able candidates.

12 The majority of candidates scored marks in this question. The common wrong answer in part (b) was s^3. In parts (c) and (d) many candidates scored part marks.

13 This question was not attempted by a significant number of candidates. Of those candidates that did, a common error in part (a) was to write y proportional to x and in part (b) most candidates did not appreciate that there would be two answers.

14 The majority of candidates just divided a distance by a time. Some identified 185 as the maximum distance, but fewer appreciated the need to divide by the minimum time. Of those that did carry out the correct calculation some rounded the final answer incorrectly.

15 The most able candidates scored well on this question. Part (a) was generally better attempted than part (b).

16 The majority of candidates either failed to attempt this question or wrote answers indicating that this topic had not been taught. In part (a) if candidates correctly answered part (i) they generally answered part (ii) correctly. The common wrong answer in part (iii) was $2a$ and candidates who gave this, or the correct answer, generally gained the mark in part (iv). In part (b) some candidates did attempt to compare the relevant vectors and some fully correct solutions were seen.

J512/05, B253/01, B265/01 - Principal Moderator's Report

General Comments

This being the last examination session where coursework could be submitted it was felt that a minority of centres were 'pushing the boundaries'. Because of the small number of candidates from many centres it was also difficult to make adjustments to marks when these were deemed necessary.

The number of centres submitting candidates was also higher than had been anticipated. However, the majority of centres submitted their candidates' work and all the documentation on time; their work had been appropriately marked and when it was necessary for moderators to contact centres the majority of queries were dealt with efficiently and quickly.

The Tasks

AO1 - Investigative Tasks

With almost no exception the tasks seen, understandably, were the usual ones -Opposite Corners, Magic E and T-shapes being very popular. The marking of the investigative tasks was usually very good although in some cases there was evidence of over marking in the third strand where centres still struggle to understand the requirements for the award of 5 marks.

AO4 - Handling Data Tasks

Here too the usual tasks were seen – tasks of the Mayfield High/Average Student genre, together with Reaction Times were particularly common. The marking of the first two strands was generally accurate in this category but, as in past sessions, centres tended to over mark the third strand, Interpret and Discuss, and award 6 or 7 marks even when there was no evaluation and little linking of the findings to the original aims.

Assessment

As indicated above, the assessment of the tasks was generally satisfactory although some centres' marks did require adjustment. It was pleasing to see that more centres, as a proportion of the entry, were annotating the scripts indicating where and what credit was awarded and this, of course, made the moderation process much more straightforward.

Administration

Although moderators reported some problems with obtaining documents, and in a few cases scripts, the majority of centres completed all the necessary documentation efficiently and submitted paperwork and scripts as requested and by the deadlines set. It seems ironic that as this component finishes the problems the moderation team have experienced over the years seems to be diminishing!

Grade Thresholds

General Certificate of Secondary Education
Mathematics (Specification Code J512)
January 2009 Examination Series

Component Threshold Marks

Component	Max Mark	A*	A	B	C	D	E	F	G
1	100				72	60	48	37	26
2	100				72	58	45	32	19
3	100	79	63	47	32	21	15		
4	100	87	69	51	33	20	13		
5	48	43	37	31	26	22	18	14	10

Specification Options

Foundation Tier

FA

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	378				300	250	200	150	100
Percentage in Grade					39.5	26.5	13.3	8.9	6.5
Cumulative Percentage in Grade					39.5	66.0	79.2	88.1	94.6

The total entry for the option was 2122.

FC

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	378				300	250	200	150	100
Percentage in Grade					38.0	39.2	9.1	5.9	1.6
Cumulative Percentage in Grade					38.0	77.1	86.2	92.1	93.7

The total entry for the option was 923.

Higher Tier

HA

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	500	450	400	350	300	250	200		
Percentage in Grade		8.9	11.9	29.4	26.2	16.0	3.3		
Cumulative Percentage in Grade		8.9	20.8	50.2	76.4	92.4	95.7		

The total entry for the option was 466.

HC

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	500	450	400	350	300	250	200		
Percentage in Grade		1.4	13.7	26.7	30.8	18.2	3.8		
Cumulative Percentage in Grade		1.4	15.1	41.8	72.6	90.8	94.5		

The total entry for the option was 292.

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	1.2	2.6	5.7	36.8	27.7	10.3	6.3	4.0
Cumulative Percentage in Grade	1.2	3.8	9.5	46.3	73.9	84.2	90.5	94.5

The total entry for the examination was 3803.

Statistics are correct at the time of publication.

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