OCR
Oxford Cambridge and RSA

GCSE

Applications of Mathematics (Pilot)

General Certificate of Secondary Education **J925**

OCR Report to Centres June 2016

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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 specification 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.

OCR will not enter into any discussion or correspondence in connection with this report.

CONTENTS

General Certificate of Secondary Education

Applications of Mathematics (Pilot) (J925)

OCR REPORT TO CENTRES

A381/01 Foundation Tier

General Comments

There was a good spread of marks with very few single-digit totals; only about 5% of candidates gained less than a quarter of the available credit but almost 70% gained at least half of the available credit.

Of the three questions that comprised the paper Question 3 was overall the least well answered. Question 2 attracted the best responses overall.

There was a significant decrease in the number of items not attempted compared with previous sessions. However, as might be expected, some of the algebraic items were found challenging, particularly by the least capable, as evidenced by Question 3 parts (c) and (d). Candidates attempted to structure their solutions by making use of sub-headings but this practice was not widespread. Absence of the simple structuring of responses may lead to loss of possible credit when judgements are made regarding the quality of written communication (QWC).

There was no evidence suggesting that time was an issue for candidates. The literacy demands of the paper did not appear to have a significant effect on ability to respond to questions. However an error which might be attributed to either literacy or notation problems was the number of candidates who interpreted, for example, "1.5 m^2" as an area of "1.5 × 1.5 = 2.25 square metres".

The legibility of written work was usually but not always at least satisfactory. Presentation and clarity of number work was generally of a good standard although there were instances of inadequate or muddled working.

An area of surprising difficulty, almost independent of capability, was the conversion between metric units, in particular in Question 1(d) which required converting millimetres into metres. Hopefully such errors are indicative of candidate carelessness under exam conditions rather than lack of knowledge. A similar but less prevalent situation existed as regards radius and diameter (Question 3(a)).

Areas which were found difficult included: solving multi-step arithmetic problems in context (Question 1(d)), constructing an algebraic expression (Question 2(a)(ii)), identify a quadrilateral from given information (Question 2(c)(iii)), interpreting and using am and pm in context (Questions 2(f)(i)), measure bearings (Question 2(d)(iii)) and substituting into multi-step algebraic expressions (Question 3(d)).

Areas in which candidates showed a good understanding included: simple fractions and percentages (Question 1(a)), interpreting indices (Questions 2(b)(i) and 2(h)(i)), using and interpreting coordinates to locate a point (Question 2(b)), using number machines (Question 2(a)), identifying and using alternate angles (Question 2(c)(i)) and interpreting a table of numerical data (Question 2(h)(ii)).

Comments on Individual Questions

Question 1

In part (a)(i) most candidates gained full credit, with just under a half of the least capable finding the question a challenge. There was no obvious pattern in the incorrect responses which included 1000, 2310 and $\frac{1}{10}$.

Part (ii) was usually correct with occasional answers involving incomplete cancellation, decimals were sometimes given as answers. About half the least capable were successful. Partial credit was available when a correct unsimplified fraction was followed by an incorrect simplification, and this was occasionally observed. One of the best answered questions was 1(a)(iii), with only a small minority giving a fraction instead of the requested percentage.

Most candidates gained full credit in part (iv). Common errors usually involved the introduction of extra zeros and the transposing of some figures such as 168, a common wrong response was 1 4960 186. Overall only about half the candidates were successful with part (v). This dropped to less than a quarter for the least capable. Common incorrect responses included 1 500 000, 500 000 or too few or too many zeros at the end of the number. A full follow through was available from the previous part-question.

Part (b) was the item, in which the quality of written communication (QWC) was assessed, the majority of candidates were able to gain half or more of the available credit. In many cases working consisted of random calculations dotted around the page, frequently unlabelled. Following these there was a description of the calculations that had been carried out. Candidates need to be aware that simple labelling, such as 'floor space = $11 \times 9 = 99\,m^2$' is sufficient. Many interpreted data such as $14\,m^2$ to mean $14 \times 14 = 196\,m^2$.

Part (c) was the least well answered part of Question 1. Less than a quarter of candidates gained full credit with less than half gaining at least partial credit. Many seemed not to realise the question was about estimation (stated in the stem) and interpreted it as one requiring the calculation nearest to the exact answer. B was a common choice, usually referring to the approximations being closest to the original numbers and sometimes referring to the answer being closest to the actual answer. The latter response was not accepted.

Part (d) was found challenging by candidates, with less than half gaining half or more of the available credit. There were a noticeable number of random calculations involving the given numbers, often including the irrelevant 50 km. Even when the appropriate numbers were matched correctly the wrong calculation was often performed, whether to multiply or divide by the 14 mm caused confusion for many. This exposed serious weaknesses in understanding the operations as by their nature the actual quantities were outside candidates' experiences and relied on a firm understanding of process. When candidates were successful in calculating the shelving required the change of units from millimetres to metres proved a step too far for many, attempting to use a factor of one hundred was a common – partial credit was available for a follow through correct conversion.

Question 2

A very large majority gained full credit in part (a)(i); about half the least capable were successful. In situations where the answer was incorrect it was sometimes difficult to award partial credit due to a lack of working.

A very large majority gained full credit in (b)(i), with a common error of failing to reduce to a single value. Very few candidates gained partial credit. Evidence of 7^2 being interpreted as 7×2, were pleasingly rare. The majority were correct with part (ii) with many earning partial credit for

inclusion of an incorrect symbol or the omission of a correct symbol. Only occasionally were the answers to (ii) and (iii) reversed.

Part (c)(i) was well answered with a very large majority gaining full credit. The majority of the least able were successful. However part (ii) was not quite as well answered, in spite of the fact that a full follow through was available from the previous response. This would suggest a weakness in the understanding of alternate angles. This might perhaps have been alleviated by the parallel sides being marked on the diagram rather than this information being given beside the actual figure. Part (iii) was the least well answered item on the paper, less than 1 in 10 were successful. There was very little evidence of candidates joining the points which might have guided candidates to the correct response. Rectangle and parallel were common wrong answers. The majority experienced at least partial success with part (iv). Recognition of the acute angle was generally well done. Obtuse and reflex angles caused more difficulty with some confusion between the two.

A very large majority of candidates were successful in part (c)(i) Almost no candidates transposed the coordinates, the majority of errors simply involved carelessness in reading the axes. Almost all candidates were successful; with part (ii) most errors involved lack of clarity or precision in marking the spot – unreasonable large dots covering several small squares. Use of a cross would have reduced the danger of ambiguity. However for part (iii) only about a quarter achieved full credit. Some earned partial credit for drawing a line from Paris to Lille but then were unsure of which angle was required with many giving the complement of the correct answer, the reverse bearing or the correct answer corrected from 360°. Similar questions have proved problematic in previous sessions.

A very large majority of candidates were successful with part (e)(i), the very small number of incorrect responses included 12 and 12000 (originating from 5 x 12 = 60 perhaps). The majority of lost credit was a result of candidates failing to attempt the item. Some correct answers were seen for (e)(ii) but the majority were incorrect. It was hard to see where candidates had gone wrong as little or no working was seen. Dividing the previous answer by 60 was not an uncommon wrong response. Less than a quarter of the least capable candidates were successful. Although full follow through was available from the previous part only about a half of candidates gained credit for part (iii) It was not uncommon to see answers 20 smaller than the answer in (ii) – showing a misunderstanding of " **times** faster".

In part (f)(i) only a minority gained credit for 17 with 5 hours the most common response, somewhat surprisingly as am and pm were both clearly displayed. A few listed the times every hour but errors in counting up resulted in incorrect responses such as 16 or 18. A large majority of candidates gained full credit in part (ii); 2, 5, 10 and 15 were the most frequent wrong responses.

About 50% were able to give an estimate for the height of the tower in g(i). However it was somewhat disappointing to observe a number of obviously wildly wrong responses such as 50 or 1000 metres. Candidates were more successful in part (ii), with the majority gaining full credit. Most incorrect answers were almost invariably too large, in common with the previous part question. The magnitude of these over-estimates cannot be ascribed to taking the height of the average person as 2 metres – this is factored into the range of acceptable responses. Part (iii) was well answered item with two thirds gaining full credit. A very common wrong response was 1740, a result of "1792 – 52" perhaps indicative of literacy problems, although the problem as worded is one that could quite reasonably be posed in real-life.

A very large proportion of responses were correct in part (h)(i) , a small number of errors such as 12 and 2 000 000 were seen. In part (ii) the great majority of candidates were successful. Errors were usually the result of picking the wrong pair of semaphore towers, 9.2 was a common wrong response. The majority of candidates were successful with part (iii), but somewhat surprisingly 3.5 – 2.8 giving an answer of 0.7 was a common error.

Question 3
Part (a)(i) was found challenging by the least capable candidates. A minority of all candidates failed to gain any credit. Many misread the scale and answers such as 26 were common, despite the "... use the magnified millimetre scale ..." given. Some gave the radius of the indent. Other errors involved stating 4.3, the centre of the indent. As well as correct answers to part (ii) a significant number were able to follow through correctly from their previous answer. Overall almost two thirds were successful.

In part (b) a large majority gained at least partial credit. However, only a minority of candidates gained full credit for the correct order. Roughly equal numbers gave a correct reverse order or a 'correct' increasing order with 0.9 cm treated as 0.9 mm (although "**centimetres**" was emboldened).

When candidates were able to use the formulae correctly in part (c) they were usually able to obtain the correct answers for the hardness and a correct conclusion. Unfortunately, many candidates made errors from the beginning, copying the formulae incorrectly, eg omitting 1.85 from the numerator and/or treating the denominator as d instead of d^2. A very small minority mistakenly carried over the false idea from the previous part that small calculated numerical hardness means low hardness. Overall about a third of candidates gained full credit. Performance on this question seemed, subjectively at least, to have been better than similar questions posed in previous sessions.

Many were able to follow the steps required in part (d), but often substituted incorrect values for the variables. In some cases, different values for D were used throughout the question. Occasionally candidates reverted to the formulae from the previous part. For some candidates with the correct substitutions premature rounding lost accuracy and full credit was not available.

A381/02 Higher Tier

General Comments:

There was no evidence to suggest that candidates had insufficient time to complete the paper.

Use of calculators was evident throughout, but candidates need to be aware of the need to show the calculations they are performing on the calculator. Method marks cannot be gained for a final answer that is incorrect where the calculation is not written down. This is true across all questions, not just QWC questions. Moreover it is important for candidates to show their working in a methodical fashion. It is difficult for examiners to follow calculations presented haphazardly. Methodical working, clearly set out, adds to the demonstration of a candidate's mathematical knowledge and understanding and allows a candidate to gain valuable marks where they have not managed to reach a fully correct solution.

Finally candidates should consider whether or not both their final answers and / or steps in the working are sensible with respect to the context of the question, see particularly Q1 (b), Q4(d), Q4(e), Q5(b) and Q6.

In questions where a number of statements need to be interpreted independently, candidates need to be aware of the importance of reading the question carefully and extracting relevant information, see particularly Q4(c)(iv), Q4(d), Q4(e) and Q5(c).

Comments on Individual Questions:

Question 1

Q1(a) was generally correctly answered. The main error was to do 200/60, getting 3.3333…., and then claiming this is the same as 0.3.
In Q1(b) candidates recognised that this had something to do with common multiples, but relatively few coped well with the decimals and worked with 0.24 or 24 instead of 2.4 as the lowest common multiple. Other common strategies were to list common multiples. Candidates who found 2.4 as the common factor often went on to give a final answer of 43 (having got 43.75), 'rounding down' the incomplete final repeat of 2.4, but ignoring the initial tick together at 0 seconds.

(b) 44

Question 2

Responses to Q2(a) showed that most candidates were able to substitute into the formula and identify the correct metal.
In Q2(b) candidates demonstrated they knew how to use a calculator correctly.

(a) Zirconium with 62 & 82; (b) 49.2

Question 3

Q3(a) was generally answered correctly.
In Q3(b) most candidates recognised this was a straight line, with very few candidates choosing to draw a table of values.

(a) 0.988449

Question 4

There were some good answers to Q4(a) with the best answers specifying the given percentage had been rounded.
In Q4(b) the best responses displayed clear and concise methods working confidently with fractions rather than decimals.
In Q4(c)(i) and Q4(c)(ii) almost all candidates scored full marks.
In Q4(c)(iii) the best responses used an efficient method for finding the percentage increase (99.9/70.6), or found the amount of increase and then found this as a percentage ((99.9-70.6)/70.6).
Q4(c)(iv) was a good discriminator of ability with the best responses working with 1.06 and 0.93. Where candidates chose their own value for 2012 funding income and showed understanding of the situation they had additional work to calculate the percentage increase.
In Q4(d) the more successful responses began with a correct algebraic equation for each statement before substituting for *c* and solving to find *t*.
In Q4(e) the most direct route to a correct solution marked the angles on the diagram and used angles in a triangle to form an equation supporting their answer with clear working.

(b) 1080; (c)(i) 87.5; (c)(ii) 51.49; (c)(iii) 41.5; (c)(iv) 1.42 decrease; (d) 48; (e) 18

Question No. 5

There were several approaches to a correct solution and the best responses to Q5(a) stated the scale factor they were using and went on to calculate the height correctly.
The best responses to Q5(b) showed the steps in working clearly, first stating the length scale factor in surd form. A number of candidates who realised volume had something to do with cubing used 1.5^3 as the scale factor.
In Q5(c) the best approach began by writing each statement as an equation before solving simultaneous equations. There were some successful methods using proportional reasoning leading to a correct solution. A common error was in treating the more than to imply an inequality rather than using the whole statement to find an equation connecting the two sizes of cranes.
In Q5(d)(i) representing the situation in a sketch proved a successful approach before calculating the bearing. Scale drawing often produced an inaccurate result.
Candidates generally scored full marks for Q5(d)(ii).

(a) 38.5; (b) 66.4; (c) 2925; (d)(i) 032

Question No. 6

The best responses either used integer values for the sides, for example 2 and 5, especially if their approach to the solution involved Pythagoras or worked with fractions 2/7 and 5/7.
Candidates did not always use their calculator when following the fraction method and lost marks through poor pen and paper calculations.

$\frac{29}{98}$

A382/01 Foundation Tier

General Comments:

The candidates who sat this paper were largely well prepared and were able to demonstrate their skills in computation, reading and interpreting charts and situations and then make general statements based on sound reasoning and evidence. In this session there was a further improvement in the way candidates were recording both their working out, their reasoning and showing their calculations. Best practice included showing their ideas, explanations and methods to justify their solutions. Candidates clearly made good use of their calculators but understood that answers alone are seldom acceptable in real life situations. An improving number of candidates managed to demonstrate their understanding of using a variety of formulas, using inequalities and how theoretical probabilities are established based on data shown in a graph. Candidates also showed they could use assumptions to support their reasoning in suggesting a suitable size for a cup or an estimate for the number of hours per day someone could cycle.

There was no evidence that students had been unable to attempt all questions within the allotted time frame of 1.5 hours.

Comments on Individual Questions:

Question 1

In part (a) the vast majority of candidates scored heavily. They were successful in estimating a fraction from a pie chart and then finding this fraction of 150 litres. Nearly all candidates managed to change 140 days into 20 weeks and then read off an appropriate value between 54 and 55% from the graph in part (b). Better answers in b(iii) involved candidates successfully finding their percentage of 200 000 tonnes and then comparing this with the 3000 tonnes needed to provide water for a day. It was pleasing to see better solutions including words explaining their solution. Unfortunately, weaker students failed to heed the melting effect in b(i) and (ii) thus preventing them from earning all the marks.

In part (c) virtually all candidates were successful in finding the volume of the cuboid iceberg. A similar percentage of candidates then managed to multiply their volume by 900 but failed to realise the answer required an answer written in millions of litres – very few candidates managed this conversion. The 10-metre iceberg was nearly always correctly categorised and an improving number of candidates showed they could find the correct inequality in part (d).

Examiners were pleased to see so many scripts where candidates showed excellent skill in estimating an area in part (e). Most candidates were successful in subtracting a negative number in part f(i). The finding of the height of the iceberg above the water did prove problematic for around half the candidates. Common errors included dividing the 56 metres by 7 rather than by 8. Successful candidates showed full working out and were rewarded for their carefully structured responses. In part (g) candidates either had no idea how to proceed or gained all 3 marks which were available through either the expected scale diagram or successful use of Pythagoras Theorem.

Question 2

A pleasing number of candidates were successful in part (a) whether they specifically used Frank's formula as expected or whether they simply used their calculator. The vast majority of candidates were successful in b(i) and b(ii) but only the strongest responses managed to correctly show the formula Frank used in cell F2. A small number of candidates showed they

knew that an = sign is needed for a formula though even then they rarely found the required cell references.

Question 3

This was a question where all candidates managed to show they could interpret results from a table in part a(i) and a graph in parts a (iv) to (vi). Better responses tended to correctly identify trends in a(ii) whereas weaker responses did a year by year account which was given less credit. It was pleasing to see more candidates able to correctly calculate an index value in part a(iii). In part (b) the majority of candidates were successful in coping with equivalisation and were able to spot a pattern in the table and express it succinctly. Virtually all candidates managed to find 60% of £450 but were then confused as to what they were comparing in b (v). This often led them to finding 60% of the £400 household income rather than their poverty line value. Many good reasons were seen in b (vi) – usually about people not having access to the internet or people having the opportunity to do the survey more than once.

In part (c) several candidates managed to identify the correct values from the table but often failed to realise the values found were already thousands – so they did not need to recalibrate their value. Some misunderstanding was seen in c (iii) where weaker candidates gave the largest value of 7400 rather than identifying the 20 000 to 30 000 class interval. Most candidates managed to successfully complete and use given the table of results in part (d). The majority of candidates showed healthy skill in using and interpreting the scatter diagrams in parts (e) and (f). These candidates were able to comment on the differences between positive and negative correlation situations which they managed to express in word form – thus demonstrating their understanding of the situations.

Question 4

Best solutions here were carefully structured and logically set out with a clearly stated assumption of what their cup size was and a worded description of whether the volume of water generated was more or less than their stated cup size. This was either done by stating the volume was bigger or smaller than their cup size or dividing their volume by their cup size. Weaker responses seen usually managed to start finding the correct volume by multiplying 24, 7 and 60 but then sometimes dividing by 0.1 rather than multiplying by 0.1. Weakest responses simply stated that either Amber or Tom was right with no evidence. Students who showed no reference to a cup size severely limited their access to available marks.

Question 5

In part (a) the majority of candidates scored heavily as they demonstrated their ability to read and interpret a line graph. It was pleasing to see a large majority of candidates successfully use the line graph to generate a probability in a(iii). Candidates have become better at reasoning as virtually all answers seen in a(iv) were backed up with sensible reading showing understanding of the question. It was a delight to see so many candidates successful in using the formula for the power in b(i). Finding the net for the cuboid was also an area where candidates also achieved a good deal of success. A similarly high percentage of candidates successfully identified the correct views in b(iii) with views A and C usually being the ones wrongly identified most of the time.

Question 6

This proved to be the question which caused most difficulty for all but the weakest candidates. Nevertheless, a healthy percentage of candidates managed to score some marks in part (a) usually calculating either the 900 miles or 1550.4 km. The majority of errors occurred when candidates wrongly used the conversion factor which led them to 605.625 km or 2304 miles.

Sadly, around 10% of candidates did not attempt question 6 at all. In part (b) best answers talked about the rounded nature of 3 million.

In part (c) a small number of candidates correctly found the circumference of the wheel by multiplying 70 by π. Only the strongest candidates then proceeded to divide the 969 miles by their circumference or showed consideration of the need to change their circumference into imperial units or the 969 miles into metric units. In part (d) some fully justified answers were seen where candidates stated the number of hours per day someone could be expected to cycle – usually taking into account time for sleeping and eating etc. Such responses then were able to access full marks for this question. On the other hand, weaker responses merely divided the 969 by either 9 or 24 without considering the need for rest or the fact that there were 9 days involved, not just one.

A382/02 Higher Tier

General Comments:

There was no evidence to suggest that candidates had insufficient time to complete the paper. Candidates made a good attempt at each question in this paper, with a very low no response rate. They were able to apply standard techniques, for example percentage increase, Pythagoras and frequency density.

There were several questions which required a high degree of accuracy working with large numbers or multi-step techniques which needed a clear systematic approach. Candidates demonstrated a good use of calculators in these questions as well as throughout the paper generally showing the calculations that were performed on the calculator setting out their work appropriately for examiners to follow, allowing method marks to be awarded.

A number of questions required decisions supported with clear calculations.

Candidates need to be aware that where a question asks for answers to be supported with calculations then the whole calculation, not just an answer to whatever calculation was performed, needs to be shown.

Justification following calculations was sometimes ruined by poor use of English language.

The applications papers require candidates to consider the situation rather than just crunching numbers. It was evident that this was not always the case both in approaches chosen and in final answers given.

Conversion between metric units proved problematic for some candidates who did not have a good grasp of using the prefix to help them decide the multiplying factor.

Comments on Individual Questions:

Question 1

Q1(a) was generally correct. Whilst
The best responses to Q1(b) and Q1(c) showed the values from the table they were using for their calculation and referred to the result of their calculation in their answer. A significant number of candidates failed to show their calculation in part (b) while in part (c) marks were lost through not making a comparison.

(a) 12.5

Question 2

Good responses to Q2(a) showed clear working with candidates generally achieving full marks. Q2(b) was generally correct with many candidates making reference to a rounded number
In Q2(c) the best responses approached the calculation systematically taking care to convert between miles and km and between km and cm accurately. Final answers were often spoilt by not appreciating what the required degree of accuracy might look like in this situation and when working with such large numbers. In Q2(d) the best answers considered what may be reasonable to cycle per day, stated this assumption and worked with these figures clearly showing their working.

(c) 705 000

Question 3

In Q3(a)(i) candidates generally scored 2 or full marks for one or both different arrangements to the arrangement given.
The best approaches to Q3(b) appreciated the need to fit the charges within the dimensions given rather than simply finding volumes and dividing. Candidates who used the correct approach occasionally did not know how to translate an arrangement of 6 × 5 × 1 into 30 chargers instead choosing 5 or 1.

In Q3(c) most candidates were able to use Pythagoras in 3-dimensions gaining full marks.
Q3(d)(i), (ii) and (iii) were generally answered correctly whilst Q3(d) (iv) proved more challenging with candidates failing to appreciate the implications of < and ≤ when finding the numerical value to use in their inequality.

(b) 30 and 32.4 × 22.5 × 2.1; (c) 59.2; (d) (i) 7

Question 4

In Q4(a) and Q4(c)(i) almost all candidates scored full marks showing an ability to work with large numbers and a clear understanding of the key in stem and leaf diagrams. However Q4(b) showed candidates unable to deal with bounds when working with large numbers. Q4(c)(ii) was a good discriminator with the range often confused for the interquartile range.

(a) 260 000; (b) 455 000 and 464 999; (c) (i) 310 000; (c) (ii) 150 000

Question 5

This question demonstrated candidates good use of calculators. Q5(a) was almost always correct. In Q5(b) most candidates achieved full marks although their responses showed candidates did not appreciate when they had shown sufficient values to stop or did not give values to a sufficient degree of accuracy for the situation.

(a) 4.464

Question 6

Q6(a) and Q6(b) showed that almost all candidates were able to measure accurately, draw a simple construction and express a ratio.
In Q6(c)(i) candidates generally worked to the degree of accuracy required with both answers given equally. However in Q6(c)(ii) candidates often failed to use their answer to (c)(i) and work to the degree of accuracy required.
The best responses to Q6(d) showed organised method and clear calculations for each step in their working. The common error was in failing to use trigonometry to find the angle choosing instead to make assumptions about the fraction of a full circle. However method shown allowed part marks to be awarded.
Q6(e)(i) and (ii) were generally correct. In Q6(e) (iii) the best responses showed a bell curve with just their mean length given on the horizontal axis. Many candidates did not always understand that relevant value did not imply scale the axis.

(b) 5:8 or 50:80; (c) (i) 5.590 or 55.902; (c) (ii) 1:1.618; (d) 12.4; (e) (i) 120

Question 7

Q7(a) proved challenging with the best responses recognising that each section of the track had to be treated separately using either Pythagoras or trigonometry. Most candidates found the distance of each section, but then modelled the track as a single triangle.
Q7(b)(i) and Q7(b)(ii) were generally answered correctly. Q7(c)(iii) proved a good discriminator with a fair proportion of candidates gaining special case marks equally for 53, 246 and 247.

(a) 66; (b) (i) 14 25 19 13 5; (b) (iii) 54

Question 8

This question showed good understanding of graphs with a significant number gaining full marks across the whole question. Common errors across the question parts were as follows: Q8 (a)(i) either axes labels reversed or graph B given; Q8(a)(ii) axes labels reversed; Q8(c) poorly worded statements and in Q8(d) several up and down dips in their curve.

OCR (Oxford Cambridge and RSA Examinations)
1 Hills Road
Cambridge
CB1 2EU

OCR Customer Contact Centre

Education and Learning
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office; 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity

OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553