edexcel

Examiners' Report/
Principal Examiner Feedback

January 2015

Pearson Edexcel International GCSE
in Mathematics (4MB0)
Paper 02R

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2015
Publications Code UG040611

Grade Boundaries

Grade boundaries for this, and all other papers, can be found on the website on this link:
http://www.edexcel.com/iwantto/Pages/grade-boundaries.aspx

Introduction

It was pleasing to observe that, overall, the standard of presentation and clarity of work was high. As in previous examinations, it would be prudent for Centres to encourage their candidates to answer the questions within the examination paper booklet and not, if at all possible, on any extra sheets of paper but if they are continuing a question on a page which does not relate to the question that they are answering, they must indicate that they *are* continuing the question on another page in the examination paper booklet or on a separate sheet of paper *and* indicate that page number and then clearly identify the question on that page.

The question paper did highlight the following problem areas, followed by their corresponding question numbers, which should receive special attention by Centres:

- Algebraic problems in contextual situations (5)
- Compound probabilities (6(d))
- Vector magnitudes (8(e & f))

Report on individual questions

Question 1

A popular question, with the most of the candidates gaining full marks. Some of the others erroneously thought that the given height, 40cm, was also the slant height thus gaining no marks.

Question 2

Another popular question with the majority of candidates collecting full marks. A common incorrect answer for part (a) was $\frac{17}{4}$ obtained from $\left(-\frac{1}{2}\right)^2+6\left(+\frac{1}{2}\right)+1$. Some candidates forgot to substitute $3-2x$ for *both* of the two occurrences of *x* in f(*x*), losing both marks .Of those who went wrong in (b), many were able to collect the two method marks in part (c).

Question 3

It was pleasing to see many fully correct attempts at this histogram question. Those who labelled the unit increment on the frequency density axis as 0.4 usually collected only the marks for the bars for $20 < t \leq 30$ and $30 < t \leq 70$.

Question 4

Another popular question with many of the candidates scoring well. The usual errors in part (a) were to have 13 instead of 13 - *x* and 25 instead of 25 - *x* in the Venn diagram resulting in a score of B1 B0 followed at best by B1 (follow through) in (b). Several candidates were able to collect the follow through B mark in (d)(ii) for correctly using their value of *x*.

Question 5

Although a number of candidates collected full marks for this algebraic question set in a contextual situation, many collected nothing mainly because of being unable to answer the first two parts of this not uncommon question. Common incorrect answers for (a) and (b) were the

inverses of the correct ones which still left available the B1 follow through mark in (c) and possibly the first method mark in (d) which were collected by a small minority of candidates.

Question 6

Part (a) was well answered as was part (b). Many candidates in (c) incorrectly thought that "at least 3" meant 1, 2 or 3 leading to a probability of $\frac{4}{5}$ and gaining no marks, or that it meant 4 and 5 leading to an incorrect probability of $\frac{1}{5}$, again gaining no marks. In (d), a common error was to interpret a total score of 4 from two throws as being obtained from throwing 2 followed by 2 and throwing 1 followed by 3 and omitting that of throwing 3 followed by 1, leading to an incorrect probability of $\frac{1}{5}$ and collecting only the first method mark.

Question 7

It was pleasing to see many correct answers for this question. There were a number of candidates who were unable to answer (a) but were able to collect full marks for (b) and (c) as these parts were independent of *AC*. Some careless arithmetic was seen in the calculations and Centres would be advised to urge their candidates to use at least 4 significant figure accuracy in their calculations in questions of this kind.

Question 8

As with many previous vector questions, weaker candidates were able to collect some marks from the beginning of the question. Part (a) was usually correct and, if this was the case, so was (b). For some reason, a number of candidates gave $\overrightarrow{AX}$ rather than the required $\overrightarrow{OX}$ as their answer to (c). Many of these candidates, then equated their $\overrightarrow{OX}$ to their $\overrightarrow{AX}$ at the beginning of their answer to (d), losing the three marks for (d). Some candidates, however, did manage to recover in (d) by equating $\overrightarrow{AX}$ (obtained from $\mu\overrightarrow{AD}$) to $\overrightarrow{AO}+$ their $\overrightarrow{OX}$, possibly collecting the three marks for (d). Part (e) was correctly answered by many candidates even those who had incorrect answers to the rest of the question but did have the correct one to (a)(ii). Part (f) was problematic to many students who clearly did not have a firm understanding about the use and manipulation of vector magnitudes.

Question 9

Most candidates collected at least some of the marks for parts (a) and (b). However, it was noticeable by the absence of any attempt at part (c) that many candidates did not know how to draw tangents to curves and then how to calculate their gradients. Part (d) was usually correctly done as was part (e) and if, part (d) had a correct straight line drawn, the two marks for (f) were usually collected.

Question 10

A minority of candidates just answered parts (a) to (c) correctly and nothing else. There were numerous successful attempts at drawing the enlargement in (d) but there were some candidates who thought that a negative scale factor meant the image was drawn on the same side of the *y*-axis as the original triangle. Some candidates incorrectly thought that triangle *B* was the reflection of *A* in the *y*-axis but managed to collect some or all of the follow through marks available in parts (d) and (e) and then possibly the two marks for (f).

Question 11

Even though this question was the last one of the paper, a sizeable minority of candidates collected full marks. There were many successful attempts at part (c) followed by respectable attempts at parts (d) and (e). Curiously, a number of candidates did not attempt (a). Of those that did, a small minority then lost their way in (b) probably because they did not realise that the equation for s was twice the equation given (a).

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London WC2R 0RL