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March 2011

GCSE

GCSE Mathematics (2381)

Higher Paper (5383H/10)

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Publications Code UG UG026927

Edexcel GCSE Mathematics March 2011

1. PRINCIPAL EXAMINER'S REPORT – HIGHER PAPER 10

1.1 GENERAL COMMENTS

1.1.1 This paper gave candidates ample opportunity to demonstrate their understanding. Some very good attempts at the paper were seen.

1.1.2 The use of three letter notation to name angles remains a weakness. It was clearly evident in question 8 that many candidates were unable to identify angle ORP.

1.1.3 Candidates should be encouraged to read the wording of questions carefully. In question 3, for example, many candidates worked out the number of boys rather than the number of girls.

1.2 REPORT ON INDIVIDUAL QUESTIONS

1.2.1 Question 1

In part (i), the majority of candidates gave the correct answer of 85 for the value of x. The most common incorrect answer was 95. Candidates were less successful at giving a correct reason in part (ii).The vast majority of correct answers used alternate angles (and it was pleasing that most referred to 'alternate' angles rather than to 'Z' angles). 'Alternative' and 'alternating' were frequent wrong answers but the most common error was to confuse corresponding angles and alternate angles. Few candidates gave valid reasons that involved more than one step, e.g. corresponding angles and angles on a straight line. It was much more common to see just one of these reasons rather than the required two. The use of the terms co-interior angles or allied angles was rare. Those who described angle x and the 95^o angle as C angles or interior angles gained no mark.

1.2.2 Question 2

This question was answered quite well with many candidates drawing the correct straight line. Those who drew a table of values for x in the given range and then worked out the values for *y* were often successful. Some candidates plotted the points correctly but failed to draw a straight line through them and a few did not draw a line long enough to cover the full range of values. A surprising number of candidates plotted four of their five points correctly but made an error with the fifth point. Some candidates gained one mark by drawing a straight line through one correct point (which was usually (0, –5) or (3, 13) or (–1, –11)).

1.2.3 Question 3

This percentage question was not answered quite as well as might have been expected. Many candidates worked out 55% of 1600 and gave that as the final answer, failing to realise that the question asked for the number of girls. A variety of correct methods were seen although relatively few candidates used 0.45×1600. On this calculator paper, many candidates used non-calculator (decomposition) methods to work out 55% of 1600 or 45% of 1600 and often failed to get each part of their working correct. Having worked out 50% of 1600 as 800 many went of to state that 10% = 16 and 5% = 8 and failed to gain any marks.

1.2.4 Question 4

Part (a) was answered well. Some candidates did not know the meaning of 'factorise' and gave answers such as $7y^3$. In part (b) the majority of candidates were able to expand at least one of the brackets correctly. Some made careless errors, such as $'15x + 20 + 6x - 1'$ instead of $'15x + 20 + 6 - 3'$. Many candidates were unable to simplify their four terms correctly and $'21x - 17'$ was a very common incorrect answer. Having expanded the brackets, some candidates went on to multiply the two resulting expressions together. In part (c) many candidates expanded the brackets to obtain an expression with four terms. However, sign errors in the expansion were very common and the final term was sometimes incorrect, e.g. $'-3'$ or '–21'instead of '–28'. Mistakes were often made in the simplification of the expression. A common incorrect answer was $'y^2 - 11y - 28'$ and a significant number of candidates gave the answer as $y^2 - 3 - 28'$.

1.2.5 Question 5

This question was well answered by the majority of candidates and many of those who failed to get the correct answer were awarded a method mark for showing either 6.6965... or 12.29 in their working, however, a significant number of candidates did not write down any interim answers and lost the possibility of a method mark. Common incorrect answers were 0.738... (from applying the square root to only the numerator) and –5.1031... (from keying in the whole calculation without inserting any brackets). Some candidates did not read the question carefully and failed to write down all the figures on the calculator display.

1.2.6 Question 6

This was not a particularly well answered question. Most candidates did realise that they needed to first find the volume of the triangular prism but many were unable to do so correctly. The most common incorrect volume was 1080 cm^3 and surface area calculations were also quite common. Some candidates gave their volume as the final answer but many did attempt to work out the density. Some of the candidates who did not work out the correct volume were able to gain a method mark for dividing the mass by their volume. Many candidates, though, divided the volume by the mass and some multiplied the volume by the mass.

1.2.7 Question 7

This was generally well answered. Many of the candidates who did not give the answer in standard form gained one mark for writing 24×10^{19}. Some chose to write the given numbers as ordinary numbers before multiplying and then converted the answer back to standard form. Too many candidates did not know how to write the answer from their calculator display in standard form and gave answers such as 2.4^{20}.

1.2.8 Question 8

This question was poorly answered. Only a small proportion of candidates gained full marks and many gained no marks at all. It was evident that many candidates could not correctly identify angle *ORP*. Many worked out angle *POS* or angle *POR* and gave that as the final answer. Those who drew the line *PR* on the diagram were more successful. The right angle at *P* between radius and tangent was often marked on the diagram but, unfortunately, a large number of candidates also took angle *RT* to be a tangent to the circle and marked angle *ORT* as 90° or took triangle *PRT* to be isosceles. Some candidates assumed that angle *POS* was equal to angle *ROS*.

1.2.9 Question 9

Most candidates attempted this question although it was apparent that many had no idea what they were doing. Some candidates attempted to cancel individual terms in the numerator and the denominator and some replaced x with a number and gave a numerical answer. Those who knew that they needed to factorise the numerator and the denominator were often unable to do so correctly. Where candidates gained just one mark this was often for factorising the difference of two squares. Solutions to this question were often poorly presented with attempts at factorisation scattered across the page.

1.3 GRADE BOUNDARIES

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