Principal Examiner Feedback

Summer 2013

GCSE Mathematics (2MB01)
Paper 5MB2F_01 (Non-Calculator)

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications come from 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

Summer 2013
Publications Code UG036388

GCSE Mathematics 2MB01
Principal Examiner Feedback – Foundation Paper Unit 2

Introduction
Candidates were generally good at reading scales and dealing with temperatures, both positive and negative. The arithmetical skills of candidates were poor - many had problems with adding 4 monies, with finding 35% of 200 and with finding two and a half lots of 32. Although many candidates were able to carry out geometric processes they were less skilled at using appropriate geometric language in giving reasons for their answers.

Report on individual questions

Question 1
Most candidates were able to deal with parts (a) and (b) although a few wrote 260 as the answer to part (b). Candidates were less sure of place value and in many cases put 6.5 before 6.37.

Question 2
Most candidates were able to state that the angle was obtuse and measure it as 125^{o}, within tolerance.

Question 3
Although many candidates stated the correct answer of 65 there were a large number who misread the scale and stated the answer 62 for part (a). Candidates had greater problems with reading and processing the value in part (b). Many misread the pointer as 3.8 but even for those that could read the weight as 3.4 kg, candidates could not in some cases find half of 3.4 correctly, with 1.2 being a common answer.

Question 4
Most candidates were able to identify the minimum temperature in part (a) and many were able to calculate the difference between the two temperatures in part (b), although often this was given as a negative number. Part (c) was also well done with most candidates being able to navigate the 'gap' over 0.

Question 5
Parts (a) and (b) were well done with most candidates getting a correct answer, although there were a number who wrote the clumsy cd5. Part (c) proved to more of a challenge with $5a - 3b$ being a common incorrect answer. Some candidates simplified to $5a + 3b$ but then went on to 'simplify' this to $8ab$.

Question 6
The meaning of the square root symbol was usually understood although there was the occasional 24.5. Some candidates had the correct idea but wrote 7×7 or 7^2 on the answer line - these did not get the mark. Candidates were less clear on part (b) where often the answers 9, from 3×3, or 18 from 3×3 twice, were seen.

Question 7
Most candidates were able to draw an isosceles triangle correctly. Answers to part (b) were also generally good with nearly everyone scoring at least 1 mark. Of course, there was evidence that some candidates had confused area with perimeter from the many 5 by 2 rectangles.

Question 8
Answers were generally good. Candidates were able to select the correct prices, add them and subtract 22.60 from their answer. It was rare to see a correct sequence without the answer being written in correct money notation (i.e. 4.20 as opposed to 4.2). There were some disturbing signs of very poor arithmetic - for example $2 \times 7.55 = 15$ and $5.65 + 6.05 = 11.60$ or 11.00 as well as many poor attempts at subtraction.

Question 9
Answers to all parts were generally good. Some candidates gave the answer $\frac{70}{100}$ for part (a) (which was acceptable). Some candidates gave the answer 3% for part (b) (which was not acceptable). Most candidates were able to cancel the given fraction to $\frac{2}{3}$ in part (c).

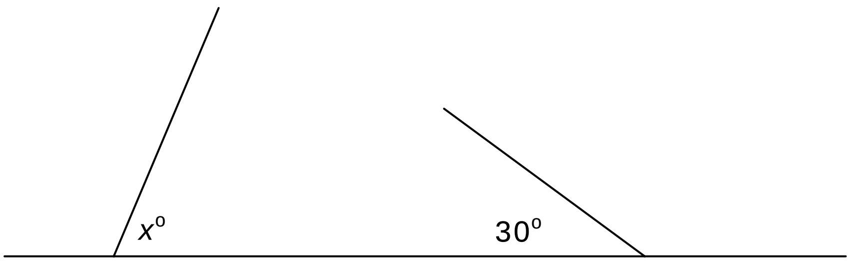
Question 10
Most candidates were able to select the correct responses for parts (a) and (c). Some had trouble with part (b), where the subtraction was often carried out incorrectly.

Question 11
Almost all candidates were able to state the correct answer to part (a). Part (b) proved to be more problematic although many candidates did gain full marks. Some candidates lost a mark through drawing a cuboid of the wrong size - others could get one face (usually the leading face) correct but then failed to complete properly. Candidates who drew hidden lines as solid lines were not penalised.

Question 12
Most candidates were successful at both parts. On part (b) they generally used £10 = €12 and then went on to find the correct value of €60. A few students used a unitary method of £1 = €1.2 and then attempted to multiply by 50.This generally proved to be less successful

Question 13
Many candidates had difficulty with this question. The main problems were to do with either the calculation of 35% of 200 or with finding one fifth of 200. Most successful candidates went down the line 10% = 20 counters, 5% = 10 counters and then working out 20 + 20 + 20 + 10 = 70. However many candidates were not able to implement this route; they often ended up with 35 itself or with 65, or with 90 (from 60 + 30). Many candidates could not find the number of red counters as they had either not related one fifth of 200 to dividing 200 by 5 or indeed could not carry out the mechanics of dividing 200 by 5. A few candidates worked directly with fractions (rarely successful in scoring full marks) or with percentages (a little more successful). Although some of these left their answer as 45% rather than calculating 45% of 200. Occasionally a candidate would calculate 35% of 200 followed by one fifth of 130.

Question 14
This proved to be quite a problem for many candidates although a pleasing number were able to calculate that $x = 60^{o}$. Most successful answers involved finding angle $DCB = 20^{o}$, then angle $DBC = 140^{o}$, followed by angle $DBA = 40^{o}$ and angle $DAB = 60^{o}$. Only a few used triangle *ADC*.
Many candidates were under the misapprehension that triangle ADB was isosceles and found x to be 50^{o} (or indeed 80^{o}). Although a pleasing proportion of candidates found the correct value of x, there was less success in supplying full reasons for their working. Candidates frequently did not specifically refer to <u>angles,</u> often giving reasons such as "a straight line = 180^{o}" or "a triangle = 180^{o}" neither of which earned a mark. Others failed to use "straight". There was some evidence again of poor arithmetic skills with 180 – 140 = 60 seen There was also some evidence of poorly remembered angle facts, such as using 360^{o} or 160^{o} as the sum of the angles of a triangle or misusing the "sum of the angles on a straight line" rule. For example:



"x = 150 angles on a straight line add to 180^{o}"

Finally, some candidates misunderstood the meaning of the bars on the lines, believing that it meant the lines were parallel and hence looked for "z" (sic) angles.

Question 15
Many candidates did at least make a start on the question by deciding how many small boxes could fit along an edge of the large cuboid shaped carton. However, many then could not visualise the relationship between the calculation they next needed to do and the number of small boxes that fitted inside the carton, so often giving 5 + 6 + 3 = 14 as their answer. Candidates who followed the route volume of carton ÷ volume of a box often lost marks through poor arithmetic - often calculating 50 × 60 × 30 as 9000 or 10 cubed as 100 or 300.

Question 16
Answers to parts (a) and (c) were good. Many candidates knew how to expand brackets correctly for part (a). On part (c), many candidates knew they had to add the exponents.
Part (b) was answered much less surely, with correct answers rather rare. Some candidates who spotted that y was a common factor then went on to write $y(y+3y)$

Question 17
Many candidates had difficulty with this question. Firstly, there were those candidates who seemed clear that the limiting factor was the amount of butter. They saw that the appropriate multiplicative factor was 2.5 (or 2 and a half). However, many could not take the calculation any further, as they did not have the arithmetical skills to multiply 16 by 2 and a half. Some candidates tried to build up the amounts, such as 100 + 100 + 50 for the butter and 6 lots of 50 for the sugar. They again seemed to have problems with relating this to the number of biscuits Sabrina could make. Some candidates looked as if they thought that they had to make biscuits in multiples of 16, so gave the answer 32. A few candidates were able to calculate the number of biscuits they could make given for example, 300g of sugar. They then picked the maximum value (96) as their answer. On occasion a candidate would work out the maximum number of biscuits for each of the ingredients, treating it as the limiting amount and then add all of these together.

Question 18
Most candidates who made a table of values were able to fill it in correctly, plot the points and draw the correct straight line through them. The most common error was to calculate the wrong values of y for x = -1 and x = -2 leading to a V shaped graph. Occasionally a candidate would plot all the correct points but fail to join them.

Question 19
There were many good answers to this question. Most successful candidates calculated the area of the floor from 2 × 4.5 + 2 × 3 and then found how many 2.25s they needed to just exceed 15. Many candidates attempted this idea but often calculated the perimeter of the shape, by adding up all the numbers in the diagram.
A few candidates decided to work more directly with the covering. They often split the floor into a 2 by 4.5 rectangle and a 2 by 3 rectangle. They then argued that there were 4 packs needed for the large rectangle (2 × 4.5 ÷ 2.25) and 3 packs for the small rectangle (3× 2 = 6 and 3 × 2.25 = 6.75)

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

Ofqual

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

Rewarding Learning

Pearson Education Limited. Registered company number 872828
with its registered office at Edinburgh Gate, Harlow, Essex CM20 2JE