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ASSESSMENT and QUALIFICATIONS ALLIANCE

Free-Standing Mathematics Qualification

Working in 2 and 3 Dimensions 6982/2

Foundation Level

Report on the Examination

2007 examination - June series

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General

Most of the candidates found the paper accessible and worked through all the questions. Their marks were distributed across the full range, from below 5 to above 35. Some centres had prepared their candidates well but there were also others in which all the candidates scored low marks.

It was disappointing that, in some cases, candidates did not appear to know the formulae needed to attempt the questions, even where the shapes concerned were shown on the data sheet. For example, the information in the "Roof supports" section of the data sheet made it clear that there would be at least one question on triangles in the examination, yet some centres did not seem to have revised the formula for the area of triangles with candidates. Such centres are advised to make use of the Data Sheet to familiarise candidates with the contexts, remind them of the mathematical vocabulary that may arise and help them to practise the formulae and methods that may be needed.

Question 1

The majority of the candidates scored about half the marks available.
In parts (a) and (b), candidates often answered correctly for one diagram but not the other.
In part (c), most knew that the first shape was a hexagon but not that the second was a rhombus. Often candidates stated diamond, kite, parallelogram, quadrilateral or trapezium instead.

Question 2

Candidates did well with this question, many achieving all 4 marks. In cases where candidates lost a mark, it was usually because they did not complete the rhombuses correctly.
In a few cases it was because they included incorrect lines.

Question 3

Part (a) of this question was answered well, most of the candidates giving the correct answer of 30˚. Occasionally, a candidate used a protractor incorrectly and gave an answer of 150˚ or 60˚.
Part (b) was answered less well, mainly because many candidates did not state the units they had used. Many answers of 9.6 and 96 were seen but these earned no marks.
It was pleasing, in part (c), that many more candidates used the scale correctly than was the case last year. Unfortunately, many of these candidates did not achieve the rest of the marks for converting the length to metres. Often they did not divide by 100 to convert centimetres to metres and an answer of 480 m was quite common. Candidates should be advised to think about whether answers they have found are reasonable – 480 metres is unlikely to be correct for the width of a garage.

Question 4

Those candidates who knew the formula for the area of a triangle tended to achieve all the marks that were available for parts (a) and (b) of this question. Most of the candidates who failed to gain any marks had forgotten to divide the product of base and height by 2. A few of the candidates added dimensions instead of multiplying.
Only a small number of candidates were able to complete part (c) by subtracting four of the small triangles from that of the large triangle to find the area of the attic space. Even those who did find the correct value sometimes lost a mark by using incorrect units. A few of the candidates did not use the hint given in the question and tried alternative ways of calculating the required area, but they usually made a mistake in one or more of the steps. Some candidates multiplied their answers to parts (a) and (b) and some omitted this part of the question.

Question 5

Many centres do not appear to have covered the use of compasses and ruler to construct a perpendicular bisector and some candidates omitted this question. Very few completely correct answers were seen, though candidates did sometimes gain one or two of the marks by drawing a correct perpendicular bisector by some other means and marking the correct position of *C*. A large number of candidates produced a correct perpendicular bisector but then did not show the position of *C* or put it in the wrong place. A few diagrams were messy and inaccurate and gained no marks.

Question 6

Less than half the candidates answered either part (a) or (b) correctly.

In part (a), candidates sometimes used the formula for the circumference of a circle rather than its area. In some attempts, candidates simply multiplied or added the dimensions given on the diagram.

Those candidates who did manage to answer part (a) correctly often did well with part (b) too. A few of the other candidates also picked up marks in part (b) by multiplying their answer to (a) by the height and/or giving correct units for volume. However, in most attempts the method used was incorrect. Candidates often tried to use the formula for the volume of a cuboid rather than that for a cylinder. Sometimes candidates picked up a mark at the end for stating the units of volume but, more often than not, this was incorrect as well

In general, candidates find working with circles and cylinders difficult and often do not achieve any marks on questions involving these shapes. It would be useful if centres looked out for these shapes on the data sheet and spent more time discussing them with candidates prior to the examination.

Question 7

The quality of the diagrams produced for this question varied from centre to centre. Many diagrams were excellent and gained full marks, but there were also some extremely poor attempts. Some candidates did not make any attempt to use the given scale and some simply copied the diagram given on the previous page instead of drawing a front elevation.

Question 8

Most of the candidates gained 1 or 2 marks for this question, depending whether or not they showed a correct calculation. It was a pity that some candidates achieved only one of the marks despite taking the trouble to explain how they had used a protractor. A few of the candidates gave an answer of 135° either because they had used a protractor incorrectly or because they had calculated the interior angle of the octagon instead of the angle x.

Question 9

Many candidates missed out this question. Of those who did try it, the majority achieved 3 of the 4 marks by giving an answer of 64, not realising that they would need an extra bin to include both ends of the promenade. Many of the candidates who got the wrong answer had failed to convert kilometres to metres correctly. A significant minority got the wrong answer by dividing 50 by 3.2.

Principal Moderators Report

FSMQ Foundation Level

The majority of centres submitted Managing Money and Making Sense of Data portfolios, with only a small number of centres submitting portfolios for Working in 2 and 3 Dimensions.

Managing Money Portfolios

It was pleasing to see that most centres had developed a suitable table at the beginning of their portfolios which enabled candidates to ensure that all elements had been completed according to the specification. The investigations submitted for 'Best Buys' and 'Order Forms' were generally very appropriate and many candidates were able to demonstrate independent work, with parties and family holidays figuring in a large number of submissions. There were varied investigations submitted for 'percentage and fractional increases/decreases'. It should be noted that for a grade A, candidates must carry out both percentage *and* fractional work. The 'savings' task, again, gave many candidates the opportunity to demonstrate independent work by reference to savings accounts available on the high street or on the internet.

Most centres applied the scaling rules for incomplete portfolios accurately. (These scaling rules are indicated in the specification). If work is attempted for all elements (even though one element may be very slight) then the portfolio is complete.

It is one of the aims of FSMQ coursework that candidates should be encouraged to check their work by using a variety of methods. When checking is carried out, it should be indicated by the candidate. A typical method for checking work would be the use of approximation techniques. A significant number of candidates were awarded fewer marks in Strand 2 than in the other two marking strands because they did not carry out sufficient checking.

Comments made by candidates on their work were generally meaningful, with more able candidates including mathematics in their comments.

Making Sense of Data Portfolios

It was pleasing to see that many centres had included a check list of the twelve items required for completeness of this portfolio at the front of their work.

The standard of the portfolios was generally good, with spreadsheet work being a particular highlight. Independent work was developed from a variety of sources relating to the candidates' work in other subjects. Direct proportion was well understood, with the majority of candidates able to explain and describe appropriate situations. Candidates were able to write meaningful reports on data and charts from a variety of sources.

As in Managing Money, some candidates either did not carry out checking of their work or did not indicate they were carrying out checks.

Working in 2 and 3 Dimensions Portfolios

Although some excellent portfolios were submitted, generally portfolios were not of as high a standard as those for Managing Money and Making Sense of Data. Centres should ensure that the specification is closely observed and that all elements are carried out. The scaling rules for incomplete portfolios are detailed in the specification. The majority of centres carried out all the administration extremely well, with sample scripts being received and despatched quickly and efficiently.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.