

## **Application of Number Level 3 March 2008**

### **General Comments**

The paper was balanced in its coverage of the Key Skills standards, but some of the questions were set in contexts that may have been unfamiliar to candidates. It opened with a relatively straightforward question, but overall proved quite demanding in terms of its length and the complexity of some of the questions. Candidates were selective in the questions they attempted and the order in which they did the paper, and some found an advantage in tackling the Extended Answer Question first.

The pass mark on this paper was similar to previous series but the proportion of candidates obtaining a pass mark was lower than previously. The performance of candidates in different centres varied. Some seemed to have been entered at the wrong level or before they were ready for the Level 3 paper, and they either omitted questions or did working that showed an uncertain grasp of key concepts. Errors were seen in the selection of suitable methods, in identifying and using the information given as well as in calculating results. Incorrect rounding was frequently seen; marks were lost by rounding part way through a calculation, leading to incorrect answers. Some candidates gave final answers which were either unrounded or incorrectly rounded.

The presentation of workings is important in Application of Number. Where an answer is incorrect, marks can still be awarded for complete correct working. If working is incomplete or non-existent, as was the case on some candidate scripts seen in this series, compensation marks cannot be awarded.

The questions answered most successfully on this paper were those involving calculations using percentages, proportion and using a formula. Questions involving dimensions taken from a scale drawing, area and volume and trigonometry were often handled well by stronger candidates, but others showed weaknesses in these areas. The weakest responses were seen on writing and using equations.

### **Comments on Particular Aspects of the Question Paper**

The paper opened with a question on recycling of used tyres which was relatively straightforward. Part c asked for a check by reverse calculation, and a common error here was to do a check of only part of the calculation. In part d, some candidates misread the question and gave an answer based on 1 mile of road rather than the 7 miles stated. Others did a calculation based on an incorrect value for the number of days in one year.

In a question about bottled water relatively few candidates identified the reverse percentage question and of those who used a correct method, some omitted to round the final answer as required in the question. The compounded percentage question in part b was answered correctly by many although a lengthy and repetitive method was often seen. Part c asked for an approximate ratio, and few correct answers were seen. Many candidates used a calculator to give an answer of 1 : 2.86 instead of the approximation 1 : 3, and others did not give answers in a simple form. Part d was well answered, but some candidates did not convert pence to pounds correctly, and others gave an answer based on a 1 litre bottle of water instead of the 500ml stated. Many correct answers were seen for part e.

Question 3 was well answered by relatively few candidates. Writing and using formulae proved beyond many and part d revealed weaknesses in recalling the correct formula for the area of a circle as well as in rearranging the formula to find the diameter for a circle of a given area.

Most candidates who attempted question 4 gained some marks. Part a involved finding one angle of a right-angled triangle and was well answered by stronger candidates. Others did not use the correct height, and some failed to choose the correct method to find the angle. Some correct answers to part c were seen, but many candidates were unable to find the distance between the two stations or the time taken. For part d, many candidates successfully calculated the number of trips needed, but few were able to use the information on the time taken to work out the number of cable cars required.

Question 5 required candidates to use dimensions from scale drawings to find the area of a roof. Some found the correct actual dimensions by scaling up, but then found the area in square millimetres and did not convert correctly to square metres. Others found the area using the scaled dimensions but did not scale up correctly. In part b, relatively few candidates chose a correct method to calculate the water required.

There was a wide variety of responses to the extended answer question. In some cases, it was omitted entirely or only a few parts were attempted, possibly due to time pressure. There were few correct answers to part a, with many candidates giving an answer as a percentage instead of a fraction in a simple form. Most candidates who drew the frequency polygons for part b gained some marks, but few completely correct graphs were seen. Common errors included omission of title or units on the vertical axis label, incorrect scale on the horizontal axis, and plotting on upper class boundaries instead of mid-points. Lines were usually identified, although some were not drawn with a ruler, others were not joined to the points, and some were joined to the origin. For part c, comments on the graphs tended to focus on comparing the frequencies of births in one of the age intervals rather than the distribution of mothers giving birth. Few correct attempts at finding the mean from a grouped frequency table were seen. Common errors included totalling the mid-points, or dividing by the number of intervals.

## **Recommendations to Centres**

Centres must ensure that candidates:

- set out workings clearly showing the complete method used
- practise writing and using equations
- solve problems involving scale diagrams, area and volume and conversion between different units of measurement
- find the mean from grouped frequency tables
- choose suitable levels of accuracy and be guided by the data provided
- avoid premature rounding in multi-stage calculations
- follow the conventions used for graphical presentations, in particular titles, appropriate labelling and units, and use suitable linear scales where necessary.

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