

KEY SKILLS APPLICATION OF NUMBER (JANUARY SERIES) 2006

Chief Examiner's Report

Level 3

This was the second paper to provide the opportunity for 'reading time'; I commented on this in my report for the November series. However, I am aware that the January series will involve a different group of centres, so I am repeating my comments and suggestions, as there is little evidence that candidates are benefiting from the effective use of this allocation of time.

- Candidates may use reading time to scan the content of the paper as they may choose to attempt the questions in a different order from that in the paper. For example, candidates whose statistical skills are strong will often find this topic assessed in the extended question, and attempt it with confidence.
- However I would suggest that, after a rapid scan, it is more beneficial to take time to read each question in depth and repeatedly.
For each part-question, candidates should try to plan a strategy. Candidates should choose a route, choose/highlight relevant data and list required knowledge or formulae. As pointed out at the past Agreement Trials session, most questions involve many steps. Taking the example used then – Q.3 of the May 2005 paper as an illustration:
 - *Part a* route eg tonnes → litres → gallons → barrels → dollars
 - (Basic knowledge – simple proportion; other background knowledge? – little)
 - *Part b* route eg tonnes → litres → m³ → (area) m² → km²
 - Background knowledge includes:
Volume of prism = (Area of Cross-section) × Length
1 m³ = 1000 litres
- Candidates may make notes on the Question Paper during the reading time (I am clearly suggesting that they **should**); they are not permitted to write in the Answer Booklet during this 15-minute period.
- Any material which candidates wish to be assessed should be transferred to the Answer Booklet; only material in the Answer Booklet(s) will earn credit.

The Level 3 paper for January 2006 was felt by the examiners to be more accessible to candidates than some other papers, with higher numbers completing the paper within the time allocated. Candidates seemed to be able to recognise most of the contexts in which questions were set – there were fewer questions where hardly any candidates scored marks.

Overall, the pass rate from CCEA candidates was well above the national average. Within the CCEA entry, there was a wide range of performance. There are some candidates whose excellent work would suggest that they were well prepared for the requirements of the test, while even the weaker candidates in these centres pick up a fair number of marks, if not quite reaching the pass mark.

However in some other centres, the candidates appear to have little awareness of the demands of Level 3 – their attempts at ‘standard’ Level 3 topics would demonstrate this. Candidates would benefit from experience with as broad a selection of questions from past papers as possible. Perhaps some are entered too early in their Key Skills programme.

There are still a small number of candidates who expect to complete this paper without showing steps in their work. While correct answers will usually gain full marks, some questions require more than the final answer; if the final answer is incorrect, working must be shown to gain part marks or to gain follow through marks.

Some issues specific to this paper:

- Q.1 (a) Some did not pick up the concept of producing a simple fraction to make the comparison.
- (b) Only a minority identified this as a ‘reverse percentage change’ problem and then **divided** by 1.006; unfortunately some who understood the method used 1.06 instead.
- (c) In most papers there are questions where the candidate needs to:
- read and use complex information;
 - decide on steps through the problem (see above);
 - control units;
 - recognise sensible accuracy for the answer e.g. 77478.26p is NOT a sensible statement of the correct answer;
 - ask themselves if the answer they have found is sensible e.g. £3.81million seems to be an excessive fuel allowance.

This is not the only question of this type on the paper, but was one which many candidates found difficult.

- Q.2 (a) Many candidates were lost in the bytes and bits – often producing answers out by a factor of 8.
- (b) Most candidates produced a relevant calculation, either from the speeds or on follow through from part (a).
- (c) The percentage ‘extra’ was to be calculated as a percentage of the total number of bytes transferred.
- Q.3 (a) Many correct answers; candidates need to retain accuracy in intermediate steps before rounding the final answer.
- (b) It was encouraging to find many students were able to draw together and interpret the information from the two charts.
- (c) There were many errors with the position of the decimal point.
- (d) While there were many correct responses, there were also many signs of confusion here as candidates adopted different methods. Some obtained a percentage of the final debt; others gave answers like 1.05%.
- (e) I felt this was conceptually quite difficult and that candidates would be unlikely to have experienced a similar question, so it was encouraging to see a substantial number who dealt with this correctly. However, many

others incorrectly used variations on multiplying the 4-month rate by the number of time periods.

- (f) Perhaps this question should really have read “What assumptions have you made...”. Some candidates who had answers varying wildly from the BBC estimate assumed that the BBC was wrong!

- Q.4 (a) Any correct applications of trigonometry.
(b) It was clear that many candidates had not considered carefully what this question requires – the comparison of **two** recommendations.
(c) It seems that many did not realise that the annual salary would have to be earned in 48 weeks. One candidate expected the young man to clean only 16.5 windows per week.

- Q.5 (a) Surprisingly many mistakes in a relatively simple problem.
(b) The combination of scaling and area (or volume) has caused problems before. The scaling should precede the area. Candidates need to know what units are in use at all stages of a calculation. These aspects seemed to create more difficulty than using the formula.
(c) On the other hand, this part was surprisingly well done. Candidates need to work with the data as accurately as possible through the steps even though the final answer will involve an approximate ratio.

- Q.6 This extended answer question had many straightforward parts. However the weakness in Statistical work (especially in interpretation of data and derived statistics) that I have mentioned before was apparent from some centres. Against this, there does appear to be a gradual improvement from centres who are preparing candidates to give suitable responses to these questions.

- (a) Issues with some centres:
- No title/axes labels.
 - Scales must be continuous – this is one area where the difference between centres is obvious. At the extremes, I can think of one centre where only one candidate used a continuous scale, while the large majority of candidates from another centre produced histograms earning full marks.
 - Failure to use frequency density – similar comment to that on continuous scales.
- (b) Comment must refer to distribution not individual classes.
(c), (d) and (f) This was standard work for many candidates.
(e) Few understood what this part was trying to make them consider – that their estimate of the mean was based on $2 \times (\text{midvalue}) = 2 \times 8.5$. So the ‘new’ information would produce a lower estimate of the mean, but would not affect the median.
(g) The examiners felt that this part was poor Application of Number as many other factors would be more important than any average. Further, in this part as in other parts, the omission of smaller parks would affect both the values of the derived statistics and the comments. Hence answers giving some valid reason were generally accepted.

(h), (i) and (j) This is another topic which appears to vary from centre to centre. Candidates from some centres set up and solved the equations with confidence; in other centres candidates did not seem to know what to do. These equations were relatively straightforward.