Functional Skills Certificate

Mathematics

4368 Level 2

Report on the Examination

4368

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General

In this Level 2 assessment many students were able to demonstrate competence in the three process skills of representing, analysing and interpreting. However, a significant number found the paper difficult and were unable to do this; these students might have been more appropriately entered at Level 1.

Most responses suggested that the pre-release Data Sheet was well used, and nearly all students made a conclusion in those questions where they were asked to do so. Overall, calculators were used effectively and many students showed their working in a coherent and logical manner.

Topics that were reasonably well answered included:

- Using a timetable
- Solving a problem involving the perimeter of and L-shape
- Working out the amount of water used for 15 washes with a dishwater
- Working out whether or not it is cheaper to use a water meter to pay for water
- Allocating lanes to the fastest swimmers in the final of a 100 metres freestyle race
- Comparing two swimming times
- Working out the cost of swimming kit with 15% discount.

Topics which students found difficult included:

- Working out the area of an L-shape in square metres and converting it to square yards
- Comparing the height between two shelves with the height of a bottle of lemonade
- Working out how many cuboid boxes can fit into a large cuboid
- Working out the profit made by selling plastic carrier bags in a supermarket
- Calculating the amount of water saved using a variety of water saving measures.

Task 1 Pets Corner

(a) Many students answered this question correctly. Nearly all worked out the time that the train arrived in Newcastle, but some then did not use the timetable or used it incorrectly.

(b) Most students tried to work out the perimeter of the field, although many did not do this accurately. Many omitted the unmarked lengths on the L-shape or worked them out incorrectly; often, the wrong perimeter led to the incorrect conclusion that the fence could be made with 5 rolls of tape. Some students failed to recognise that the fence was made from four rows of tape and, because of this, decided that two rolls of tape was enough.

(c) Most students appreciated the need to work out the area of the field, and a fair number were able to do this accurately. However, many went on to use the conversion factor incorrectly, dividing the area by 1.196 instead of multiplying. Most worked out the area of half an acre in square yards. A small number used their perimeter of the field instead of the area.

Task 2 Supermarket

(a) This was the first time that students were asked to work out a rota without being given a table to complete. Overall, the response was reasonable, although a fair number of students did not allocate shifts to workers on all or some of the days. The most efficient answers were presented in 2-way tables for days and shifts and nearly all those who followed this approach gained full marks. There were also a number of fully correct lists based either on requirements for each worker or requirements for each day. Common errors included having workers allocated to more than two shifts per day, workers allocated to a day they were not available or no worker allocated to a required shift.

(b) This question was not answered particularly well, with many students failing to take into account the different number of shelf thicknesses and spaces between the shelves.

(c) Questions that require students to work out the maximum number of cuboids that fit into a larger cuboid, when the small cuboids do not fit exactly, are common on functional papers. The response to these questions has gradually improved, although many students continue to divide the volume of the large cuboid by that of the smaller. This approach only gives a correct solution when the small cuboids fit exactly. Some students, who correctly worked out the number of small cuboids that could fit along each dimension of the large cuboid, added these values instead of multiplying them.

(d) Very few students obtained the correct answer to this question. Common errors included:

- ignoring the cost of each bag and giving the total value of sales as profit
- ignoring the given fact that only 80% of the profit was donated to the charity
- working out 80% incorrectly
- rounding 1.141p (the cost of one bag) to 1p
- using inconsistent units for pounds and pence.

Task 3 Water

(a) This question was very well answered.

(b) This question was not well answered with, overall, only a small proportion of students gaining full marks. Most managed to work out the amount of water used by taking 3 showers and 3 baths, but some did not go on to work out the amount of water saved by taking showers instead of baths. Many also did not correctly work out the amount of water saved by putting a brick in the toilet cistern; a lot of students ignored the information in the question and, instead, used the information on the data sheet incorrectly. Most correctly worked out $\frac{1}{6}$ of 1200 and used the result to make a conclusion about the amount of water saved.

(c) Not all students knew that there were 365 days in a year, but they were able to gain 1 mark if they used 364 days or 360 days.

The fact that two operations were involved in working out the yearly usage caused problems for many students when trying to **check** their answer. This was particularly the case if they had obtained the correct answer to the main question but had not shown the full method.

(d) This question was straightforward and, on the whole, well answered, although some students dealt with £134 and £2.96 per cubic metre in the wrong order. A fairly high proportion of candidates made no attempt at this question, suggesting that they may have been starting to run out of time.

Task 4 Swimming

(a) This was well answered, with many students gaining full marks. However, some just listed the swimmers in the correct order of times and did not go on to assign the lanes. Others answered as if a higher time meant a better performance in the race.

(b) This question was done fairly well, with many students finding the correct answer and going on to check their answer using a valid procedure. However, there are still many who do not gain the **checking** mark, even in this relatively simple situation involving a one-operation calculation. Some students, after showing the correct method for working out 0.37 seconds, gave their answer incorrectly either as 37 seconds or 37 milliseconds.

(c) Most students attempted to compare the means of Beth's times and Daisy's times, with many managing to do this accurately. However, there were several attempts with numerical slips; some students added both sets of times and then made the error of dividing both totals by 10. A minority of students attempted to compare the median times rather than the means, and others compared the data without using a formal statistical technique.

(d) This question was done well, with, overall, a significant proportion of students scoring 4 or 5 marks. Common errors included:

- failing to take off 15% of the total cost of the swimming kit
- adding the cost of minibus hire to the cost of the swimming kit before taking off 15%.

Mark Ranges and Award of Grades

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