

**3849-301**

**Level 3 Certificate in Using and Applying  
Mathematics**

**Chief Examiner's report for the May 2017 examination.**

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# 1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates for the 3849-301 Level 3 Certificate in Using and Applying Mathematics.

This report gives feedback on the May 2017 examination series. The question paper is now available to download from the **City & Guilds website**.

## 2 Overall Performance

### 2.1 Paper 1 Mathematical Modelling

A considerable amount of guidance was given in the pre-release material as to how to tackle this particular problem. This clearly assisted candidates to replicate the illustrative examples given and in many cases to consider a restricted range of different options. It was good to see students working with spreadsheets to carry out appropriate development of tables and graphs. Those candidates who were able to build on the basic given model to explore a range of options and then summarise them gained most credit. This is what is expected in this modelling paper. The best responses managed to achieve this and included, as appendices, the working that informed their writing of advice.

It is important that candidates use their mathematical working to inform their writing in response to the question as it is the intention that they use their investigations to write succinctly about what they have found (in this case to inform a young person of options in buying a car costing a range of different process with different pay-back times and for a range of different interest rates). Ideally this advice could have been presented in a table accompanied by different illustrative graphs/charts. Very few candidates used the ranges of values given to consider the range of variation that might be expected: this would have been a good approach in this particular scenario.

Many candidates carried out appropriate calculations, albeit some only replicated what had been provided in the pre-release materials demonstrating their ability to do this using spreadsheet facilities.

In general presentation of candidate's work was good but many would have been well-advised to have spent a little more of their time in thinking carefully about how to present their advice in a meaningful and mathematical manner.

## 2.2 Paper 2 Part 1: Mathematical Comprehension

1	In general this question was well-done with candidates interpreting the shape of the curve in terms of the context.
2	Although further interpretation was required here fewer candidates tackled this question as well as the previous question. When interpreting mathematical diagrams it is important that this is done so in terms of the context and the variables referred to.
3	This question was well done by many candidates who were able to work with the diagram in the specific context given.
4	This question required candidates to extrapolate the given graph back to the vertical axis. This was understood by approximately half of candidates but eluded others.
5	Use of the graph as required in this question was successfully carried out by almost all candidates.
6	This question proved too difficult for the majority of candidates with many unable to find the required equations. This ensured that part (b) of the question was inaccessible. On the other hand a few candidates were able to make considerable progress and make a good attempt to solve their simultaneous equations.
7	Only few candidates were able to transfer their understanding of the development of cobweb diagrams to consider what would happen in the case illustrated.
8	Part (a) of this question was tackled successfully by almost all candidates although the range that was required in part (b) was not so successfully found.
9	Candidates' comprehension of the methods used in the pre-release material proved to be good with many successfully answering this question which considered the adding of an additional lottery ball to the draw.
10	Again, in this question transfer of methods illustrated in the pre-release material proved accessible to the majority of candidates.
11	Only a small number of candidates understood the implications of the different methods used in the calculation of the mean and standard deviation and gained full credit.

12	This question was not answered correctly by many candidates, the implication being that many do not understand that in the histogram the height of the bars is related to the frequency density.
13	Again the feature of the histogram referred to here was not well understood by the majority.
14	Very few candidates were successful with this question. Both parts proved difficult for many suggesting that candidates were not aware of important features of the histogram.
15	Use of the normal distribution was beyond the vast majority of candidates although it was pleasing to see that one or two of them were able to successfully towards completion of this question.

### 2.3 Paper 2 Part 2: Communicating with Mathematics

Essential to success in this element of assessment is that candidates consider carefully how they will communicate their use of, and work with, the data provided. It is important that they not only show that they can work with the data but that they can also develop a coherent “argument” that they can communicate appropriately. Reference to the qualification specification as well as the marking criteria provides suitable indication of what is expected. Fundamental in this case is the idea that exercising and eating healthily allows a person to maintain a healthy weight or even lose weight. Judicious selection of just some of the data would allow a simple argument to be developed and presented. Rather like in the modelling element of assessment (Paper 1) it would perhaps be advisable for candidates to work with some extremes to allow them to make a most powerful case.

In general, candidates did not tackle this element of assessment as well as they did the modelling element.

### **3 Overall comments**

There was a relatively wide range of responses to all parts of the assessment none of which proved too difficult to all. However, very few candidates were comfortable with using the normal distribution and aspects of histograms.

Technology appeared to be used adeptly in the examination by all candidates and responses to Paper 1 and Paper 2 part 2 were well-presented.

Many candidates demonstrated that they were well-prepared in their understanding of the pre-release material.

This, the first live use of the Level 3 Certificate in Using and Applying Mathematics, appears to have been successful in its use of pre-release material and encouraging the use of technology. The assessment papers in their totality ensured that much was accessible to all candidates and some of the questions challenging and discriminating.