

3850 Certificate in Mathematics
Chief Examiner's Report – June 2020
(Delayed examination sat - October 2020)

This report is based on a relatively small cohort of learners who sat their question paper in October 2020.

The question paper is based on the learning outcomes and assessment criteria for 3850 as stated in the Qualification Handbook. Many of the questions are based on the sample contexts but questions may be based on any aspect of the assessment criteria. This report refers to the assessment criteria (AC) causing particular concern to candidates.

General comments

Candidates should read the question carefully and attempt all questions.

Stage 1

Candidates appeared relatively confident when working with whole numbers but had problems working with fractions, including decimal fractions, and converting within a system. Some aspects of the sections covering Measurement and standard units were challenging and Shape and space continues to cause problems. However, most candidates attempted all the questions. Candidates are generally finding problems in the same areas as noted in the Chief Examiner's report for 2019.

Unit		Comment
101	Number	Candidates generally performed well in this section, especially finding the missing numbers. Candidates were able to order the sizes of plates but found recognising the date of birth of the youngest person challenging, with more candidates choosing the date of birth for the oldest person. Writing a number expressed in words as thousands in figures was also challenging. Slightly more candidates than last year were able to recognise decimal fractions and common fraction equivalences for halves and quarters, but this is still below half of the cohort.
102	Measurement and standard units	Candidates found aspects of this section challenging. Many candidates were unable to estimate the weight of a loaf of bread and chose 9 g. Over half of the candidates had problems with a clockwise quarter rotation and many were unaware of the freezing point of water. Fewer than half were able to select the correct answer for time expressed as a 24-hour clock time.
103	Pictograms, tables, graphs and charts	Candidates performed well in this section. However, half had problems reading the pictogram and only a third of candidates were able to select what was

		needed to finish the bar chart.
104	Shape and space	<p>Many candidates found this section challenging. Over half of the cohort had problems with tessellation and 2% did not attempt the question at all. Candidates often found the perimeter instead of the area of squares and rectangles, even when the squares were shown on the rectangle. Less than a quarter of the candidates were able to find the volume of a cuboid shown as a 3D diagram and only a similar proportion performed well on the symmetry question.</p>
105	Operations on whole numbers	<p>This section attracted a good percentage of correct answers. Over three-quarters of the candidates gave correct answers for addition and a similar proportion for one of the subtraction questions. However, when the question asked 'find the difference' this proportion fell to half. Over half of the candidates gave the correct answers for multiplication and division.</p>
106	Operations on decimal fractions	<p>Some candidates found this section challenging. Subtraction requiring a decimal to be taken from a whole number caused problems for half of the candidates. Subtracting a number with two decimal places from a number with one decimal place was set in context this year, but only a third of the candidates were successful. Multiplication and division caused problems for over half of the candidates.</p>
107	Operations on common fractions	<p>Candidates found this section challenging. Less than a quarter could add fractions in context, although a third could subtract fractions and the same percentage demonstrated an understanding of 'a quarter of' in context.</p>
108	Appropriate strategies and mathematical terms	<p>Candidates found this section challenging. Just over half of the candidates could recognize the equivalencies and half could recognize a suitable check. Only a third showed an understanding of mathematical terms in everyday conversation this year.</p>

Stage 2

Candidates appeared relatively confident when working with whole numbers and decimals (apart from division). They appear to have problems with some aspects of Percentages and with Operations on common fractions. Average and range and Shape and space caused the most problems together with Measurement and standard units. There were still some challenges with the interpretation of Tables, graphs, charts and maps. Candidates are generally finding problems in the same areas as noted in the Chief Examiner's report for 2019.

201	Place value	Candidates generally performed well in this section. However, only a third of candidates were able to recognise hundredths.
202	Measurement and standard units	Candidates found this section challenging. Three-quarters were able to work with imperial measurements. However, over half found it difficult to convert, and work with, metric units of length and mass, with less than a third selecting the correct answer for subtracting a measurement in millimetres from a length in metres. Under half chose the correct answer when adding minutes and seconds.
203	Operations on whole numbers	Candidates generally performed well in this section. However, just over half were unable to select the correct answer for division by a two digit number.
204	Operations on decimal fractions	Some candidates found this section more challenging than working with whole numbers, but the percentage obtaining the correct answers has improved since last year. Three-quarters could add or multiply a decimal number by a whole number, although only around half of the candidates were able to select the correct answer for division. Less than half the candidates were able to divide by ten, then multiply by 100.
205	Operations on common fractions	Candidates found this section challenging. Just under half the candidates were able to calculate one third of a number or subtract fractions, but over half were able to recognize equivalencies.
206	Percentages	Candidates found this section challenging. Less than half were able to calculate percentages and a similar proportion had problems expressing numerical information as a percentage.
207	Conversions between common fractions, decimal	Most candidates found this section challenging. Over half thought that 0.3 had a lower value than 3%. They also had problems converting one of the common fractions to a decimal fraction.

	fractions and percentages	
208	Orders of magnitude	Some candidates found this section challenging. Over half could round a number to the nearest thousand, but less than half could round to the nearest \$10. Only a third could write a number correct to two decimal places, but half could write a number to one decimal place.
209	Ratio and proportion	Some candidates found this section challenging. Three-quarters of the candidates chose the correct answer to the ratio problem, but less than a quarter of candidates chose the correct answer for the length of the wall on the plan. The percentage of candidates able to interpret the scale on a map increased this year.
210	Average and range	Most candidates found this section challenging with only a third choosing the correct answer for the average mean. The most popular answer was the mode. Less than a third of candidates chose the correct answer for range, again the most popular answer was the mode. Not all candidates attempted these questions.
211	Elementary algebra	Candidates performed well on substituting values into a formula but only half could find the missing values. Not all candidates attempted these questions.
212	Shape and space	Candidates found some parts of this section challenging. Over a third of the candidates were able to give the correct answer for the missing angle. Over half were familiar with equilateral triangles and a similar proportion were able to match the congruent shapes. Candidates generally found the questions on area and perimeter difficult, with a third or less choosing the correct responses.
213	Tables, graphs, charts and maps	Some candidates found this section challenging. Two-thirds were able to interpret the bar chart and the pictogram, but less than a third gave the correct angle for the pie chart. Only a third answered the question on the frequency table correctly. Not all candidates attempted these questions.

Stage 3

Candidates appeared relatively confident when working with integers, percentages and decimals but still experienced problems working with fractions. The section on Ratio and proportion was more challenging at this level and range continued to cause problems. Both Measurement and standard units and some aspects of Shape and space caused problems.

301	Operations on integers	Candidates generally performed well in this section. However, just under half of the candidates chose the incorrect answer for the question on prime numbers, multiples and factors and a similar number had problems with changing a binary number to denary. Only a quarter of candidates could compare temperatures when one involved a negative number.
302	Operations on decimal fractions	Candidates generally performed well on this section. Some had problems using a combination of operations and others did not attempt this question.
303	Operations on common fractions	Candidates found some parts of this section challenging. Subtraction is improving and half of the candidates were successful. Some candidates had problems using a combination of operations.
304	Order of operations	Candidates performed well on part of this section, but a third had problems with the question involving a flowchart.
305	Percentages	Candidates generally performed well in this section. This year just under half of the candidates chose the correct answer for the question on depreciation.
306	Conversions between common fractions, decimal fractions and percentages	This section was challenging for some candidates. Over three-quarters of the cohort were able to express a percentage as a decimal fraction, but less than a third could express a common fraction as a decimal fraction.
307	Ratio and proportion	Candidates found the section challenging. Just over a third could work out the actual distance using the scale from a map and less than half could work out the investment in Account B. However, three-quarters could express a ratio in its simplest form.
308	Measurement and standard	Many candidates found this section challenging. Only a third could work with grams and kilograms. However, half of the candidates were able to work

	units	out the time in Kingston when they were given the time in London.
309	Reading and interpreting tables of figures, data and scales	Candidates found this section challenging. Only a third of candidates chose the correct responses. Extracting from the temperature gauge caused the most problems.
310	Elementary statistics	Candidates found some questions in this section challenging. Less than a third were able to calculate the median with only slightly more able to calculate the range. Almost half of the candidates were able to answer the question on probability.
311	Elementary algebra	Most candidates answered this section well. The weakest area was deciding on the correct formula.
312	Shape and space	Candidates found this section particularly challenging. Over half were able to find the missing angles and a similar number could use Pythagoras' theorem to find a missing length. However, less than a third were able to choose the bearing for a south-westerly direction and a similarly limited proportion were able to find the area of a semicircle. Candidates appeared to have little understanding of the idea of similarity and the effect of doubling the length of the sides of a triangle, with most thinking that this doubles the area.