3850 Certificate in Mathematics

Chief Examiner's Report – June 2015

The question paper is based on the learning outcomes and assessment criteria for 3850 as stated in the Qualification Handbook. 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 and converting within a system.

Unit		AC	Comment
101	Number	1.1 1.6	Candidates generally performed well in this section. However, candidates found it more difficult to order money than time. Some candidates had problems recognising decimal fractions and common fraction equivalences for quarters.
102	Measurement and standard units	1.2 1.3 1.11 1.10 1.12	Candidates found it particularly difficult to estimate length with only a third selecting the correct answer. Less than a third selected the correct answer for clockwise rotation relating to the points of the compass. Few candidates were able to identify the freezing point of water in degrees Fahrenheit but most were able to read a thermometer. Many candidates ignored the units when comparing capacity within a system.
103	Pictograms, tables, graphs and charts	1.8 1.9	Candidates generally performed well on this section. Some candidates were unable to select what was needed to finish the graph. Many candidates found the question on banking documentation difficult and did not appear to recognise the terms used.
104	Shape and space	1.6 1.7 1.9 1.10	Many candidates found this section challenging. Candidates often found the perimeter instead of the area of squares and rectangles. They also had problems with the question on nets (to make a box with a lid). Only a quarter of candidates were able to find the volume of a cuboid. A popular answer related to area. Just over a third identified the correct answer to a question about lines of symmetry.
105	Operations on whole numbers	1.7	This section attracted a good percentage of correct answers. The main problem appeared to be division and 1% did not attempt one of the division questions. The question on sharing the cost of a meal received more correct responses than a question on how long a packet of tablets would last.

106	Operations on decimal fractions	1.3 1.7	Many candidates found this section challenging. Subtraction posed a particular problem in one question requiring a decimal to be taken from a whole number. Division caused problems particularly when set in a context of sharing orange juice between glasses.
107	Operations on common fractions	 1.1	Around half the candidates performed well on this section. Between 1 and 2% of candidates did not attempt the questions. Adding fractions appeared to be the most challenging question with the most common response being to simply add the numerators and the denominators.
108	Appropriate strategies and mathematical terms	 1.1	Candidates who attempted these questions generally performed well. The most difficult question appeared to be recognising the equivalence of operations.

Stage 2

Candidates appeared relatively confident when working with whole numbers, percentages and decimals but still experienced problems working with fractions. Average and range and Shape and space caused the most problems together with Measurement and standard units.

Unit		AC	Comment
201	Place value	 1.3	Candidates generally performed well in this section However, some candidates found it difficult to recognise tenths. The most popular incorrect answer was hundredths.
202	Measurement and standard units	1.2 1.3 1.5	Candidates found it particularly difficult to convert between metric units of length and capacity with less than a third selecting the correct answers. Less than a third selected the correct answer for conversion between imperial and metric units. Few candidates were able to use degrees Centigrade in the context of freezer temperatures.
203	Operations on whole numbers	 1.3 1.4	Candidates generally performed well on this section. Some candidates were unable to select the correct answer for division. This caused more problems when two operations were involved.
204	Operations on decimal fractions	 1.3	Candidates found this section slightly more challenging than working with whole numbers. Over half of the candidates were unable to select the correct answer for division.
205	Operations on common fractions	 1.2 1.3	Less than half the candidates performed well on this section. Using equivalent fractions was a problem for over half the candidates who chose the distractor with both numerator and denominator in ascending order. Subtracting fractions was slightly more challenging than adding. The most common responses being to simply add/subtract the numerators and the denominators.
206	Percentages	1.2	Candidates generally performed well on this section. Calculating percentages caused more problems than expressing numerical information as a percentage. The question asking for 75% received the most incorrect answers.

207	Conversions between common fractions, decimal fractions and percentages	1.1 1.2	Many candidates found this section challenging. The most popular choice was 0.25 as the smallest value rather than 20% Candidates could not convert two-fifths to a percentage with over half choosing 3.25 as the answer.
208	Orders of magnitude		Candidates generally performed well on this section and over half were able to round numbers effectively.
209	Ratio and proportion	1.1	There were two questions for this criteria. Candidates performed better when finding the measurement for the scale drawing than when finding the actual length of the wall. Over two-thirds of the candidates chose the correct answer to the ratio problem
210	Average and range	1.1 1.2	Candidates found this section challenging and there appears to be confusion between mean and mode. For one question asking for mean average, over half the cohort chose the distractor giving the mode. Candidates appeared to be guessing the answer to the range with just under a third choosing the correct answer.
211	Elementary algebra	1.1 1.2	Candidates found substituting values into an equation to find the selling price relatively easy but had more problems solving simple equations with one unknown.
212	Shape and space	1.2 1.5 1.6 1.7	Candidates had problems finding the size of missing angles but were aware of the different types of triangles and transformations. Candidates found the perimeter question particularly difficult. Candidates also had problems with the area and volume of shapes.
213	Tables, graphs, charts and maps		Candidates generally performed well on this section. However, 1% did not attempt the section so may have run out of time.

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 average and range continued to cause problems. Shape and space caused the most problems.

Unit		AC	Comment
301	Operations on integers	1.4 1.5	Candidates generally performed well in this section However, some candidates found it difficult to compare temperatures when one involved a negative number. Writing a number to base 2 also caused some candidates concern.
302	Operations on decimal fractions		Candidates generally performed well on this section.

303	Operations on common fractions	1.1 1.2 1.3 1.4	Candidates found this section challenging. Adding and subtracting fractions was challenging for some candidates with candidates giving equal credit to two of the distractors for subtraction. Multiplying and dividing caused similar problems.
304	Order of operations		Candidates performed well on this section.
305	Percentages	1.4	Candidates performed well on this section. However some candidates found the question on depreciation challenging.
306	Conversions between common fractions, decimal fractions and percentages	1.1	This section was challenging for around half of the cohort. Writing a decimal as a fraction in its simplest terms caused particular problems.
307	Ratio and proportion	1.1 1.2 1.3 1.4	Many candidates found the section challenging with less than a third choosing the correct answers. Answers were spread across the key and distractors.
308	Measurement and standard units	1.1 1.2	Candidates found the first criteria for this section challenging but the question on time was answered particularly well.
309	Reading and interpreting tables of figures, data and scales		Candidates performed well on this section.
310	Elementary statistics	1.1 1.2 1.3 1.4	Candidates found some questions in this section challenging. Extracting from a bar chart appeared considerably easier than extracting from a pie chart. Candidates appeared to be confused by the term ‘average mean’ with a spread of answers. However, most learners chose the correct response for the question on the mode. A large number of candidates chose the distractor giving the difference between the first and last number as the correct answer for the range. Half the learners chose the correct response for the probability question.
311	Elementary algebra	1.5	Some candidates found using information presented in a graphical form challenging.

312	Shape and space		Candidates found this section particularly challenging. This section also had the highest percentage of candidates giving no answers. These candidates may have found this section more difficult or may have run out of time.
		1.1	Candidates appeared to be confused by the properties of a rhombus with a spread of answers.
		1.3	Candidates were unsure of the answer when using compass
		1.4	bearings.
		1.5	Candidates appeared confused regarding the size of angles in a polygon
		1.6	Pythagoras' theorem caused concern for over half the candidates.
		1.7	Only a third of candidates chose the correct response for the area of a composite shape.
		1.8	Some candidates found the area of a circle rather than the semicircle in the question and others guessed at the answer.
		1.9	Most candidates found the area instead of the volume of the shape. Candidates appeared to have little understanding of the idea of similarity and the effect of doubling the length on cubes.