NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Level 1, 2003

Mathematics: Solve straightforward number problems in context (90151)

National Statistics

Assessment Report

Assessment Schedule

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National Statistics

Number of Results	Percentage achieved			
	Not Achieved	Achieved	Merit	Excellence
40,583	32.6%	36.1%	21.7%	9.6%

Assessment Report

Every candidate for a National Certificate of Educational Achievement examination paper is expected to:
- read the question and do what the question asks
- allow adequate time to complete answers
- be accurate: check and/or proofread
- use appropriate technical terms
- bring the correct equipment
- write and/or draw clearly
- use pen if work is to be eligible for reconsideration.

General Comments

Candidates generally performed well in the standard. In particular Question One (d) was very well done, and Question One (c) was well done.

Overall, the key messages relating to the achievement of candidates stem from the following four items.

1. Rounding
Candidates were permitted to use any level of rounding or truncation in all questions except Question One (a) and Question Three, where rounding to a recognised money format was required. This rounding/truncation needed to be correct.

2. Replacement evidence
There were plenty of opportunities for candidates to provide evidence for Achievement throughout the paper. It was pleasing to see that the great majority of candidates attempted both the Achievement and the Achievement with Merit questions. Approximately 60% of candidates attempted the Achievement with Excellence question.

3. Correct answer only
While, in general, CAO (Correct Answer Only) was acceptable, candidates should be counselled to show working, as credit can sometimes be given when the error is minor or incorrectly transferred.

4 Reversing percentages
Candidates were often at a loss when faced with situations requiring this. Candidates should expect to find examples of this type in both Achievement with Merit and Achievement with Excellence. For Question Two (c) some candidates attempted to add on GST to the amount in the bank. This was acceptable but required a clear statement at the end to be given credit. Again, over half who attempted the question did not recognize it as a reverse GST question.

Note: for Question Two (b), the radius of Pluto at the equator was incorrectly given as 2274 km. It should have been the diameter. There was no evidence that this incorrect fact disadvantaged candidates. The mathematics required in the question was the same although the question should have been discussing diameter rather than radius. About half the students who attempted this question did not recognize it as a reversing percentage.

Assessment Schedule

Mathematics: Solve straightforward number problems in context

	Criteria	No.	Code	Evidence	Judgement	Sufficiency
Achievement	Solve straightforward number problems in context.	One (a)	A	$123.73875 ≈ $123.74	Working not required. Must be rounded correctly to a money value.	**Three of** Code A.
		(b)	A	11.76903273% ≈ 11.77%	Accept any other correct rounding/truncating. Working not required.	
		(c)	A	$150 or $145 or $140 ÷ 5 or $150 or $145 or $140 × $\frac{1}{5}$ $150 or $145 or $140 × 0.2	Or equivalent statement, $ sign not required	
		(d)	A	Kim pays $80, Robert pays $60.	Must have both answers. Working not required.	
Achievement with Merit	Solve number problems in context involving manipulation, several steps, or reversing processes.	Two (a)	A or M	3.952540107 × 10 ≈3.953 × 10 or 39.53	Accept any correct rounding/truncating.	**Achievement plus** **two of** code M. **OR** **Q Two (a) plus two** other Code M.
		(b)	A or M	12 753.78575 ≈12 754	Accept any correct rounding/truncating.	
		(c)	A or M	No; the cost is $306.67	Decision plus justification required. Accept any correct rounding/truncating.	

Achievement with Excellence	Devise a strategy and solve a number problem.	Three	A or M A or M E (All of Q3)	Father borrows $\$3800 \div 1.25 = \$3040$ Mother borrows $\$3800 \div (1.082)^3$ $= \$2999.87$ Total borrowed = \$6040	• Must have **TWO** of communication. This may **either** be labels "mother", "father", or "total" **or** the working for the mother, father, total. • The majority of mathematical statements must be correct.	**Merit plus** Code E.

Note: A code cannot be counted for two levels of achievement **except** that **Question Two (a) plus two** other Code M count as a Merit irrespective of the number of code A obtained.

Judgement Statement

Judgement statements (formerly referred to as sufficiency statements) help students understand how their overall results for each standard were arrived at.

Achievement	Achievement with Merit	Achievement with Excellence
Solve straightforward number problems in context **(A)** 3 × **A**	*Solve number problems in context involving manipulation, several steps, or reversing processes* **(M)** Achievement ***plus*** 2 × **M** ***or*** Q2 (a) ***plus*** 2 other **M**	*Devise a strategy and solve a number problem* **(E)** Merit ***plus*** **E**

Note: Insufficient evidence to support a judgement above **(X)**