1

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Level 1 Mathematics, 2006

90151 Solve straightforward number problems in context

Credits: Three
9.30 am Friday 24 November 2006

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should answer ALL the questions in this booklet.

You should show ALL working.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–6 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Assessor's Use Only	Achievement Criteria		
	Achievement	Achievement with Merit	Achievement with Excellence
	Solve straightforward number problems in context. ✓	Solve number problems in context involving manipulation, several steps or reversing processes. ✓	Devise a strategy and solve a number problem.
	Overall Level of Performance A M		

diff ×100 / (gara) ÷105 ÷0.95

You are advised to spend 25 minutes answering the questions in this booklet.

Assessor's use only

MONEY, MONEY, MONEY

You should show **ALL** working.

QUESTION ONE

A skateboard has a marked price of $130.
There is a "60% off" sale.

What is the sale price of the skateboard?

1-60 = 0.40

0.40 × 130

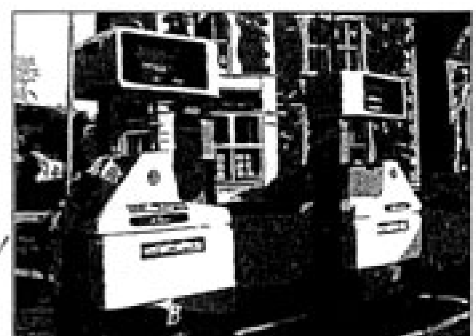
52

Sale price $ 52

All this is fine. Could have also used the approach 130×0.6 = 78, 130 − 78 = 52. $52.0 (1dp) was accepted too, even though not really appropriate when dealing with money. Fine at the Achieved level.

A

QUESTION TWO



Yesterday petrol cost $1.75 per litre.
Today the cost of petrol has gone up by 6 cents per litre.

What percentage increase is this?

2.35

$1.75 ↑ 6c

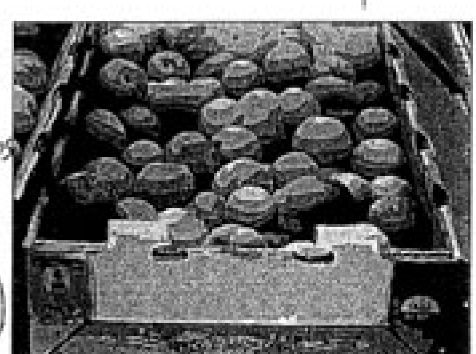
$\frac{6}{1.75} \times 100$

Increase 3420 %

A common mistake. 6c not written as $\frac{0.06}{1.75}$. 3.58 accepted. 3% accepted with correct working, but % had to be supported.

N

QUESTION THREE



Tami bought a box of apricots.

$\frac{1}{3}$ = 0.33   0.44

Tami threw away $\frac{1}{3}$ of the box of apricots because they were rotten.

She gave away $\frac{1}{4}$ of the box of apricots.

What fraction of the box of apricots did Tami have left?

$\frac{1}{4} \times \frac{1}{3}$ $\frac{3}{7} + \frac{4}{7}$

Can't add fractions with different denominators

$1 - \left(\frac{3}{7} + \frac{4}{7}\right)$

Fraction left (0)

gets nothing

Many students stopped at $\frac{1}{3} + \frac{1}{4} = \frac{7}{12}$ and then did not subtract from 1. Some converted to decimals & prematurely rounded the $\frac{1}{3}$. If their technique was correct we gave it.

N

Assessor's use only

QUESTION FOUR

Jack is having a party for 40 people.
He is going to make Spaghetti Bolognese.

Spaghetti Bolognese *(serves six people)*
0.75 kg minced beef
100 g tomato paste
$\frac{3}{4}$ cup water
2 tsp mixed herbs
2 tsp crushed garlic
300 g uncooked spaghetti

How much minced beef will he need to use?

40 ÷ 6 = 6·7 (1dp)

6·7 X 0·75

Premature Rounding did NOT with hold the grade being awarded. Their approach was correct. It was not supported by working however, NS - not sufficient was awarded

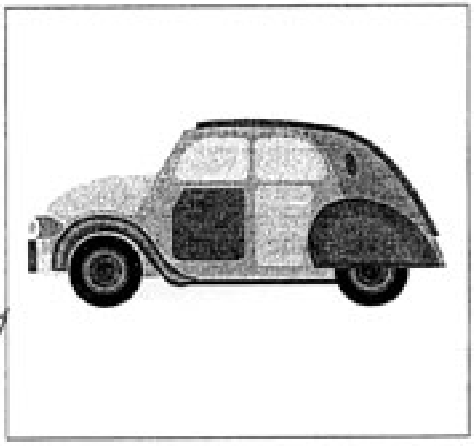
Minced beef 5·025 kg

A

QUESTION FIVE

2187 ← ÷1 (2430)

Jill is buying a car that costs \$2 430 including GST.
Her father says he will pay the GST. (GST is 12.5%)



How much will Jill have to pay?

2430 ÷ 12.5 = 194.4

Have not divided by 1·125

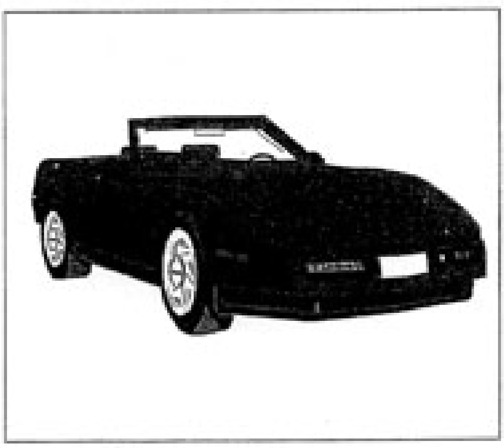
If students correctly worked out GST of \$270, they were awarded an A.

Jill will pay \$ 1944

N

QUESTION SIX

Sione bought a car last year.
The car has reduced in value by 26.3% in one year.
It is now worth \$28 500.



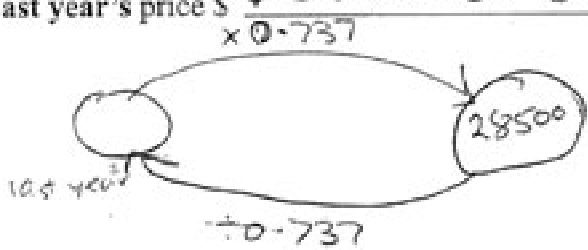
Calculate the price Sione paid for his car **last year**.

1 − 0·263 = 73·7%

0·737

MEI

Last year's price \$ 38670·9 (1dp)



Flow chart shows clear thinking & indicates how this problem should be solved. The 0·9 indicated was considered an MEI - minor error ignored. This question was not answered well and it was the question most likely to be wrong. Most common answer 0·263 × 28500 = \$35,995.50

A M

After these GB the sufficiency statement was checked & only 2 As were required to pass

QUESTION SEVEN

8·89000000

Assessor's use only

Last year, Mr Bigg's company had an annual turnover of $\$9.56 \times 10^8$.

This year, the annual turnover is $\$1.0449 \times 10^9$.

What percentage increase is this for Mr Bigg's company?

1·0449x10⁹ ↑ 9·56x10⁸

8 8900000

dif/orign x100

8·89x10⁷ / 9·56x10⁸ x100

Increase ______ %

9·30% (2dp)

M

clear indication of formula used and appropriate numbers in place, leading to correct answer. Working with Q7, if only 1 mistake made in calculation or working with incorrect denominator, then the student was awarded an A.

QUESTION EIGHT

Jemima has $5 000 to invest for two and a half years. Her bank offers two different investment schemes:

Scheme 1

The client invests the money in an account that pays 3.25% interest **only** at the **end of each year**.

Scheme 2

The client invests the money in an account that pays 1.3% interest at the **end of each six months**.

Investigate each scheme and recommend to Jemima, with reasons, what she should do.

12 months 3·25 interest

1 mont 1·3 end of year 1·56% interest

12 x 0·13 = 1·56

go for 12 months interest with 3·25% bank interest as you get More money

N

The question was poorly worded, but simple interest calculations are NOT Excellence or merit skills

However we allowed at most 2 As for this approach

This student did not even do the simple interest in the appropriate time correctly. To compare rates 2 x 3·25% = 6·5% with 5 x 1·3% = 6·5% & then correct conclusion was awarded 2 As.