



For Supervisor's use only



90151



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA



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

## Level 1 Mathematics, 2003

### 90151 Solve straightforward number problems in context

Credits: Three

2:00 pm Wednesday 19 November 2003

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.

Show ALL working.

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

Check that this booklet has pages 2–8 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.**

Achievement Criteria			<i>For Assessor's use only</i>		
Achievement		Achievement with Merit		Achievement with Excellence	
Solve straightforward number problems in context.	<input type="checkbox"/>	Solve number problems in context involving manipulation, several steps or reversing processes.	<input type="checkbox"/>	Devise a strategy and solve a number problem.	<input type="checkbox"/>
Overall Level of Performance			<input type="checkbox"/>		

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

## Kim and Robert

Show **ALL** working.

### QUESTION ONE

Kim and Robert want to buy a CD player.

- (a) A shop has a CD player for \$109.99 plus GST (at 12.5%).

How much would Kim and Robert have to pay for this CD player?




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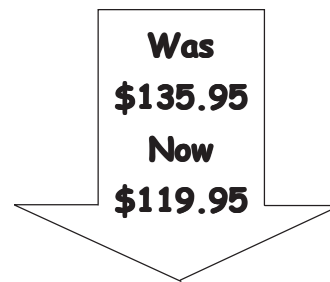


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Price is \$ \_\_\_\_\_

- (b) Another shop has a CD player advertised as 'Was \$135.95 Now \$119.95'.

What has been the percentage reduction in price?




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Percentage reduction in price is \_\_\_\_\_ %

- (c) A third shop has a CD player costing \$144.95.

This shop is having a '20% off' sale.

Kim wants to work out, **in her head**, an estimate of the discount she would get.

Write down the calculation she needs to do to give an **estimate** of the discount.

**Do not calculate the answer.**

**20% off  
everything  
in the store**

Assessor's  
use only

- (d) Kim and Robert decide to buy a CD player costing \$140.00.

They decide to share the cost in the ratio of  
Kim : Robert = 4 : 3.

Work out how much each of them have to pay.

Kim pays \$ \_\_\_\_\_

Robert pays \$ \_\_\_\_\_

**QUESTION TWO**

- (a) The earth is  $1.496 \times 10^8$  km from the sun.  
This distance is called one astronomical unit (AU).

Pluto is  $5.913 \times 10^9$  km from the earth.  
How many astronomical units is this?

**Give your answer in standard form.**

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Pluto is \_\_\_\_\_ AU from the earth.

- (b) Pluto has a radius of 2274 km at its equator.  
This is 17.83% of the radius of the earth at its equator.

What is the radius of the earth at its equator?

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The radius of the earth at its equator is \_\_\_\_\_ km

(c) Robert wants to buy a telescope.  
He has \$300 in his bank account.

The shop has a telescope for sale at  
\$345 GST inclusive.  
The shop has a 'We will pay the GST' sale.  
GST is 12.5%.

Does Robert have enough money in his bank  
account to buy the telescope?

**You must justify your answer with calculations.**



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**QUESTION THREE**

Kim's father wants to borrow some money from Kim.  
He agrees to pay her back the money, plus 25% interest, in three years' time.  
Her father will pay back \$3800 at the end of three years.

Her mother also borrowed money from Kim for three years.  
She offers to pay 8.2% interest on the money each year.  
This interest would be added to the amount owed at the end of each year. This total would be the new amount on which the interest would be calculated for the next year.  
Her mother would then pay the money she owed at the end of three years.  
She will also pay back \$3800 at the end of three years.

What is the total amount that Kim lent to her parents?

**Show all your working.**  
**State what you are doing at each step.**

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