

Mission Heights Junior college

Mathematics and Statistics AS91026(V3) Credits: 4

Apply Numeric Reasoning in solving problems NCEA Level 1 Assessment Birthday Girl-modified NZAMT Task

The quality of your discussions and reasoning, in particular with respect to any decisions and assumptions that you make will determine your overall grade. Students aiming for Excellence will need to show extended abstract thinking skills. Don't be afraid to extend the question beyond the problem stated here and include other factors involved in online buying which could affect Kalita's purchase.

NCEA-WAME

Achievement	Achievement with Merit	Achievement with Excellence
Apply numeric reasoning in solving problems. At least three different numeric methods need to be selected and correctly used in solving problems such as: -percentages -fractions or decimals -GST -rates -proportions	Apply numeric reasoning, using relational thinking, in solving problems. <ul style="list-style-type: none"> • selecting and carrying out a logical sequence of steps • connecting different concepts and representations • demonstrating understanding of concepts. And also relating findings to the context, or communicating thinking using appropriate mathematical statements.	Apply numeric reasoning, using extended abstract thinking, in solving problems. <ul style="list-style-type: none"> • devising a strategy to investigate or solve a problem • identifying relevant concepts in context • developing a chain of logical reasoning And also using correct mathematical statements, or communicating mathematical insight.

Final grades will be decided using professional judgement based on a **holistic examination of the evidence provided** against the criteria in the Achievement Standard.

Name	
Class	

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Student instructions sheet

Answer on ruled paper provided in this booklet.

Write your Name and class on each sheet.

Write with a blue or black pen only. Show full working.

Time: Two sessions under test conditions, closed book test.

Online buying during Lockdown.

Covid-19 was an unexpected event. The whole world went through unprecedented times. Kalita wanted to buy her birthday gifts during the lockdown period. The best option she had was to buy online.

Kalita wants to buy some noise-cancelling headphones and a smartwatch. She has done some investigation on-line and found some of the following options for the models she really wants:



Option 1:

Buying new on-line through Aztek Merchandising Ltd (AML-USA)

(All costs in US\$ and GST of 15% needs to be added to the total cost (i.e. including the shipping cost)).

Headphones cost US\$ 348.95.

The smartwatch usually costs US\$199.95, but they are currently offering a 25% discount.

Shipping is US\$10.37 for the headphones and US\$6.63 for the smartwatch or US\$12.01 if bought together.

Option 2: Buying locally (NZ)

(GST is included in all advertised costs).

Mighty Grape is advertising the headphones at NZ\$449 plus NZ\$3.90 shipping.

KC is advertising the smartwatch at NZ\$237 plus NZ\$5.00 shipping.

However, they currently have a promotion where they will pay the GST component of the price of the product (shipping cost is unaffected).

This promotion will expire in 3 week's time.

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Option 3: Buying second-hand (used) through F-Cove(Australia)

(Cost in Australian Dollars and GST of 15% needs to be added to the total cost).

Headphones advertised as a new condition costing AUD\$ 356.

Shipping is free.

She could not find a suitable smartwatch on F-Cove.

Additional Information – current exchange rates

1 USD = 1.5382 NZD

1 United States dollar = 1.5392 New Zealand dollar

1 NZD = 0.9657 AUD

1 New Zealand dollar = 0.9657 Australian dollar

Kalita has a part-time job at a local supermarket. She works three and half hours per week earning \$13.29 per hour. She wants to use all of her earnings to save for these items.

As it is nearing her birthday, her grandparents have offered to pay $\frac{2}{7}$ (two sevenths) of the cost to the nearest \$10 (up to a maximum of \$200) and her parents will pay \$1 for every \$2 that Kalita manages to save.

Your Task:

Investigate what is the best option for Kalita and how long in weeks will it take her to save up enough money to buy these two items?

- **Make recommendation**
- **Justify your answers**
- **Discuss any assumptions you have made.**

Your solution of this problem should:

- show all relevant calculations
- use correct mathematical statements
- clearly communicate your strategy and method at each stage of the solution.

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Working and answer page.

A grid of blue horizontal lines for writing, with a vertical red margin line on the left side. The grid consists of 25 horizontal blue lines and one vertical red line on the left side, creating a margin. The lines are evenly spaced and extend across the width of the page.

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Lined writing area with a vertical margin line on the left side.

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Lined writing area with a vertical red margin line on the left side.

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