

Mission Heights Junior college

NCEA Level 1 Assessment - Garden Glory

Mathematics and Statistics

AS91026 Numeric Reasoning

Credits: 4

Student instructions sheet

Answer on ruled A4 paper provided by you teacher.

Write your Name and class on each sheet of A4 paper you use.

Mission Heights Junior College is looking to refurbish some of the gardens on site. Mr Naidoo did some research on costing and came up with the following findings. He has asked for your help as student leaders to investigate which option will be the best one out of three.

Option 1:

Flower Power, a small local New Zealand business, offers a variety of different flowers, shrubs and trees and most plants are currently on sale as seen on their website.

Flowers	Shrubs	Trees
17% off	13% discount	1/9th discount
Regular Price \$3.75NZD	Regular Price \$11.50NZD	Regular Price \$15.90NZD

All prices include GST

Option 2:

Flower Power has alternately offered the school 1/6th off the total price instead of the above discounts.

Option 3:

Green Garden, an Australian company that has branches in Auckland, also offers a wide variety of flowers, shrubs and trees as seen below.

Flowers	Shrubs	Trees
Regular Price \$2.00AUD +GST	Regular Price \$7.80AUD +GST	Regular Price \$11.40AUD +GST

Exchange rate: \$1NZD = \$0.93AUD

GST is 15%

The school wants to plant flowers, shrubs and trees in a ratio of 8:5:3.

The school is willing to spend a maximum of \$450.00NZD for the plants and is looking to buy at least 60 plants for the gardens.

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Task

Your task is to devise a strategy to investigate the School's options and to give Mr Naidoo a recommendation on which company the School should choose and why based on the School's criteria.

Justify your answer, and discuss any assumptions you have made.

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 the project, but not stated on this assessment which could affect the company selected by the school.

WAME

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

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