Mission Heights Junior College

AS 91026(V3)

Apply numeric reasoning in solving problems

Moving Out- Modified NZAMT task

Credits: 4

Context/setting

Flatting is one of the common types of accommodation among kiwi students. Some of you might go on flatting during your tertiary student life. This activity is based around two boys wanting to move into a flat.

Conditions-All work must be performed individually.
You should show all your working and justify any decisions you make.

Achievement	Achievement with Merit	Achievement with Excellence
Apply numeric reasoning in solving problems.	Apply numeric reasoning, using relational thinking, in solving problems.	Apply numeric reasoning, using extended abstract thinking, in solving problems
		Overall level of performance

Moving Out

Student instructions sheet

Twins Kaleb and Marc have been saving to move into a flat. Together, they have a total of $1200 which they intend to deposit into a joint flat bank account.

They would like to be able to buy the following items:
- a jug
- a toaster
- a microwave
- a washing machine
- a fridge freezer.

They will also need to pay the deposit on the flat. The rental is $290 a week and the deposit is 4 weeks rent.

The boys have done some research and found two stores where they can get the above items at reasonable prices.

Lucy's Super Store	Amy's Wholesalers
Jug $59.99	Jug $41.00
Toaster $69.00	Toaster $25.60
Microwave $209.00	Microwave $127.40
Washing Machine $499.99	Washing Machine $412.20
Fridge freezer $620.00	Fridge freezer $533.20
Free delivery	Delivery charge $80 on orders under $1000
Note: all prices include GST (15%)	Note: all prices are exclusive of GST (15%)

Various family members have offered to help the boys get the money they need.
- Uncle Thomas in America will send them 85 American Dollars when they are nearly ready to move
- Aunty Lisa in Australia will send them 250 Australian Dollars
- Uncle Max says they can do some work for him and he will pay them 3/8 of the deposit on the flat
- Nana says she has some painting that they can do for her and she will pay them 2/7 of the cost of the household goods
- Marc's girlfriend works at Lucy's Super Store and can get staff discount of 12.5%.

Task

Investigate if the boys will have enough money to move into a flat they have found **and** buy the items they listed above.

Note:
Current exchange rates:

o   An American Dollar is worth 1.51 New Zealand Dollars
o   A New Zealand Dollar is worth 0.90 Australian Dollars

Current bank interest rate:

o   1.2% per annum for amounts up to $1,000, paid monthly

The quality of your discussion and reasoning will determine your overall grade.

Assessment Schedule: Mathematics and Statistics AS 91026

Moving Out		
Evidence/Judgements for Achievement	**Evidence/Judgements for Achievement with Merit**	**Evidence/Judgements for Achievement with Excellence**

Apply numeric reasoning in solving problems.
 	
Students select and use a range of methods in solving problems, demonstrate knowledge of number concepts and terms and communicate solutions that typically require one or two steps.
	Apply numeric reasoning, using relational thinking in solving problems.
	
	Students:
	    select and carry out a logical sequence of steps and/or connect different concepts and representations and/or demonstrate understanding of mathematical concepts and/or form and use a model
	          and
	    relate findings to a context, **or** communicate thinking using correct mathematical statements.
		Apply numeric reasoning, using extended abstract thinking, in solving problems.
		
		Students:
		    devise a strategy to investigate this problem and/or identify relevant concepts in context and/or develop a chain of logical reasoning, or proof and/or form a generalisation
		          and
		    using correct mathematical statements **or** communicate mathematical insight.

Students are required to: Show working and indicate what the calculated answers represent. At least three different numeric methods must be shown: *Reduce by a percentage :* e.g. discount of Lucy Store's prices *Add on a percentage:* e.g. adding GST to Amy's prices *Calculate a fraction of a quantity:* e.g. calculating Uncle Max's or Nana's contribution *Use rates:* e.g. converting US$ and AUS$ to NZ$ using exchange rates *Be able to round with decimal places* e.g. this needs to be a holistic judgement on the evidence based on an understanding of rounding across the entire task.	**Students are required to:** Clearly indicate what they are calculating, **and** their final conclusion needs to be linked to the context. To give evidence of relational thinking, students might: Calculate the total cost using a sensible option, calculate total amount of money available and make a decision as to whether the boys can move in Minor errors in calculations should not preclude the award of a Merit grade.	**Students are required to:** Show evidence of thinking beyond the problem. Evidence (actual calculations) must be used in the discussion

The interpretation of this question is 'open'. Students do not need to consider more than one option but they do need to answer the question.		

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