

Subject: HSC Mathematics Standard 2	Task Number: 3
Type of Task: Investigation	Coordinating Teacher: Judith Davis (CHS) Cooperating Teacher: Simone Parkinson (UCS) Kali Ratu Roraduri (LCCS) Lisa Bendall (TCS)
Date Issued: Thursday 30th May 2024 Term 2 Week 5	Date Due: Monday 24th June 2024 Term 2 Week 9
Total Marks: 70 Marks	Weighting: 25%

Submission Instructions: Students are to email assessment to westernlap@det.nsw.edu.au prior to 9.00am on Monday 24th June. Email subject should be in the format: Last name, First initial, Subject, Task number. For example: DavisJMathsStandard2AT3

Students should attach two files to their email:

- Questions sheet in PDF format
Saved in the format: Last name, First initial, Subject, Task Number, Questions.
For example: DavisJMathsStandard2AT3Questions
- Excel spreadsheet
Saved in the format: Last name, First initial, Subject, Task Number, Questions.
For example: DavisJMathsStandard2AT3Spreadsheet

Task Context:

In these topics you have learnt about investments, loans and annuities. You have learnt about interest and loans and how to calculate and compare different types of investments including shares and annuities.

In this task you will use your knowledge of investments and loans (Chapter 3) and annuities (Chapter 7) to complete the task. It will include you being able to investigate income, house prices, home loans including stamp duty, investments, loan repayments and annuities.

Syllabus Outcomes:

A student:

- MS2-12-5 makes informed decisions about financial decisions, including loan repayments
- MS2-12-9 chooses and uses appropriate technology effectively in a range of contexts, and applies critical thinking to recognise appropriate time
- MS2-12-10 uses mathematical argument and reasoning to evaluate conclusions, communicating a position clearly to others and justifying a response

Task Description:

“Is buying your own home a dream or a reality”

The assessment is to investigate the affordability of buying your home in today’s housing market. The key objectives for this task are to determine your potential income and savings and alternate income sources (such as term deposits and annuities). As a potential home owner, you will need to consider the amount and frequency of loan repayments and managing your finances.

Criteria for Assessing Learning

Students will be assessed on their ability to:

- calculate annual income, weekly wage and possible savings
- research house prices and home loans
- justify their decision on house and location
- investigate and compare home loans and a term deposit
- calculate stamp duty and associated fees
- create spreadsheets (using formulas) to calculate annuities and loan repayments
- calculate loan repayments and interest
- discuss their decision to purchase their house with valid reasons

HSC Key Verbs

- Calculate – determine the value of
- Compare – show how things are similar or different
- Create – to produce
- Discuss – identify issues and provide points for and/or against
- Investigate – inquire into and draw conclusions about
- Justify – support an argument or conclusion
- Research – to investigate facts

NESA “All My Own Work”

By signing for this assessment task and having completed the NESA course “All My Own Work” I confirm that this assessment task will be free from plagiarism and reflective of my own work. I understand that if I am found to have plagiarised or engaged in malpractice, I will be referred to the HT Access to engage the LAP Malpractice process.

Marking Guidelines:

Marking Guidelines	Mark
<ul style="list-style-type: none"> • Provides documentation, calculations and justifications supporting responses for all sections • Provides multiple reasons why the particular property has been chosen making comparisons to the other properties and provides screen shots of two properties • Calculates the stamp duty, bank charges and solicitors fees with detailed calculations • Completes all spreadsheets using correct formulae and answers questions correctly • Completes 4 screenshots of repayments and determines which loan to choose with justification • Calculates the interest correctly and determines the best offer • Justify a sophisticated response that answers the driving question and supports their decision by providing mathematical calculations and discussion of the essential factors to be considered when purchasing a house 	<p>A</p> <p>63 - 70</p>
<ul style="list-style-type: none"> • Provides documentation, calculations and/or justifications supporting responses for all sections • Provides a reason why the particular property has been chosen making comparisons to the other properties and provides screen shots of two properties • Calculates the stamp duty, bank charges and solicitors fees with calculations • Completes all spreadsheets using mostly correct formulae and answers questions • Completes 4 screenshots of monthly repayments and determines which loan to choose with justification • Calculates the interest and determines the best offer • Completes 4 screenshots of repayments and determines which loan to choose with calculations • Explains in detail the main factors to be considered when purchasing a house and their impact 	<p>B</p> <p>49 - 63</p>
<ul style="list-style-type: none"> • Provides documentation and calculations supporting responses for most sections • Provides one reason why the particular property has been chosen and provides screen shots of three properties • Calculates the stamp duty, bank charges and/or solicitors fees with calculations • Attempts at least 2 spreadsheets using formulae • Completes at least 2 screenshots of repayments and determines which loan to choose with justification • Calculates the interest • Attempts to explain a number of factors to be considered when purchasing a house 	<p>C</p> <p>28 - 49</p>



ASSESSMENT TASK NOTIFICATION

<ul style="list-style-type: none"> • Provides documentation, calculations and justifications supporting responses for occupation, annual income, saving amount and location • States which property is to be purchased and provides screen shots of up to three properties • Calculates the stamp duty, bank charges or solicitors fees • Attempts at least 1 spreadsheet • Completes at least 1 screenshot of monthly repayments • Calculates the difference in interest when repaying weekly rather than monthly • Explains whether it was a good idea to buy property 	<p>D</p> <p>14 - 28</p>
<ul style="list-style-type: none"> • States an occupation, annual income, saving amount and/or location • Provides a list of property locations with their listed prices • Does not complete screenshots of repayments • Student can locate a variable interest rate • Determines the interest when paying monthly repayments 	<p>E</p> <p>1 - 14</p>

Feedback:

Teacher Signature: _____

Date: _____

“Is buying your own home a dream or a reality”

You will investigate the affordability of buying your home in today’s housing market. The key objectives for this task are to determine your potential income and savings and alternate income sources (such as term deposits and annuities). As a potential home owner, you will need to consider the amount and frequency of loan repayments and managing your finances.

ALL responses are to be included in the file at the end of this task.

Section 1 – Income & House Location

(8 Marks)

Your task is to find an occupation and a place to live.

1. Research an occupation and complete the following:
 - a. What is your chosen occupation?
 - b. What will your annual income be?
You must reference where you sourced this information from.
 - c. Using your annual income, calculate your weekly wage
2. On average, a person can save approximately 30% of their annual income. Calculate how much you could save in a year assuming you could save 30% of the annual income you have identified in b).
3. Where will your new occupation be located? When deciding on a location you must consider whether it is feasible for you to both live and work there. For example, it is not practical for you to be a marine biologist in Broken Hill.
Justify why you have chosen this location with at least two reasons.

Section 2 – Choosing a Property

(9 marks)

4. Using your selected location, investigate housing options and prices. Choose 2 possible properties to purchase. Include a picture of the properties, features and purchase price.
5. Select one of the properties to purchase, assuming you pay the purchase price as advertised.
Justify your choice of property, giving at least 2 reasons.

Section 3 – Investments

(18 marks)

You can invest money to help you increase your funds.

Term Deposit:

6. Calculate the value of the term deposit and total interest for investing \$6000 in a term deposit at 4.8% p.a. for 5 years when the interest is compounded per month.
Complete **Worksheet 1** in the **MS-F4 Investment and Loans – Assessment Task – Spreadsheet**.
Make sure it is included when you submit your assessment task.

- Investigate term deposits using an online term deposit calculator and compare 2 different term deposits for \$6000 for 5 years. Include your sources and a screen shot of the online calculator calculations in the file at the end of assessment.

Annuity:

- Instead of investing in a term deposit, you could have invested \$100 per month for 5 years at 4.8% p.a. Complete **Worksheet 2** in the **MS-F4 Investment and Loans – Assessment Task – Spreadsheet**. Make sure it is included when you submit your assessment task.

Section 4 – Purchasing Property

(30 marks)

- When purchasing a home, you also need to include stamp duty, bank charges and solicitor’s fees in the cost to purchase the property. Some first home owners do not need to pay stamp duty. In this case we are assuming you will pay stamp duty.

Stamp Duty	\$8990 plus \$4.50 for every \$100 that the purchase price exceeds \$300 000
Bank Charges	0.13% of the purchase price
Solicitor’s Fees	0.25% of the purchase price

Calculate the total cost of purchasing the property, including stamp duty, bank charges and solicitor’s fees.

- When purchasing a property, a deposit must be paid and this is not included in the loan amount. The deposit is usually 20% of the total cost. Calculate the deposit to be paid and the total amount to be borrowed.
- Research Home loan interest rates and compare two different home loans from different financial institutions. Determine the best interest rate.
- Home loans are calculated using compound interest. Use your loan amount and your best interest rate from Q11 for a 30 year loan to complete **Worksheet 3** in the **MS-F4 Investment and Loans – Assessment Task – Spreadsheet**. Make sure it is included when you submit your assessment task.
- Go to Yellow Brick Road <http://www.ybr.com.au/calculators/compare-loan-repayments>. Use this website to calculate the repayments for your loan using both monthly and fortnightly repayments across 20 year and 30 year loans. Screenshots of each need to be included. Calculate the interest and best offer.

Section 5 – Conclusion

(5 marks)

- Justify if your decision to purchase your house is a dream? (5 marks)