Year 12 – 2024
MATHEMATICS STANDARD 2
D.GOUVOUSSIS

Task Number: 2

Notification Date: Thursday 15th February 2024

Weight: 20%

Due Date: Thursday 14th March 2024

Must be handed in by 3pm to Ms Gouvoussis in Room 7

OUTCOMES ASSESSED

MS2-12-5 makes informed decisions about financial situations, including annuities and loan repayments.

MS2-12-9 chooses and uses appropriate technology effectively in a range of contexts and applies critical thinking to recognise appropriate times and methods for such use.

MS2-12-10 uses mathematical argument and reasoning to evaluate conclusions, communicating a position clearly. to others and justifying a response.

TASK DESCRIPTION

Students will be required to submit all parts of the assessment on Investing Money.

TASK INSTRUCTION

Students will need to hand in their response by 3pm on Thursday 14th March 2024. The topics being assessed are:
Chapter 3 – Investments and loans
During the assessment task, students will not be able to interact with other students or utilise any technology other than a NESA approved scientific calculator. Mobile phones cannot be used as a calculator during the task.

Students may bring their class notes and coursework for use during the task. They will not be permitted to refer to or use any other materials including the textbook.

This is an assignment. Students can prepare for the task by ensuring they are up to date with coursework, have worked examples for the different types of questions in their workbook, attempting end of chapter review questions and sought clarification from their teacher in class.

MARKING GUIDELINES

Marks will be allocated next to each question. Full marks cannot be achieved without showing working apart from 1-mark questions. The questions will be grouped into each topic area. Each area will be worth 20% of the task.

Task Mark	Task Rank	Cumulative Rank

Teacher's signature: _____   DP's signature: _____

Head Teacher's signature: _____

2024 HSC MATHEMATICS STANDARD 2 ASSESSMENT TASK 2

Subject	HSC Mathematics Standard 2		
Weighting	20%	**Marks Available**	32
Issue Date	15ᵗʰ February 2024	**Due Date**	14ᵗʰ of March 2024

Outcomes to be assessed:

MS2-12-5 makes informed decisions about financial situations, including annuities and loan repayments

MS2-12-9 chooses and uses appropriate technology effectively in a range of contexts, and applies critical thinking to recognise appropriate times and methods for such use

MS2-12-10 uses mathematical argument and reasoning to evaluate conclusions, communicating a position clearly to others and justifying a response

INVESTING MONEY

Task Outline:
You have received an inheritance, and you decide to put it into an interest-bearing account for a duration. Subsequently, you invest the accrued amount in shares of your choosing. You will closely monitor the fluctuations in the value of these shares over a two-week period. After this period, you plan to liquidate your shares and use the resulting amount, or a portion thereof, to acquire an item. This item is expected to depreciate in value over time. Eventually, you intend to sell the item and assess the profit or loss incurred since the initial receipt of the monetary gift. For detailed information, refer to the table provided below.

Task Presentation:
- **Part One** will be submitted electronically (via email – dimitra.gouvoussis@det.nsw.edu.au) as an Excel document.
- **Parts Two and Three** will be submitted as a printed hard copy. These parts should be presented in a Word document which synthesises graphs, tables, quotes, screenshots and alternate pieces of evidence of your research from other sources and computer software programs.

PART ONE: COMPOUND INTEREST (9 marks)
You have inherited MONEY. This is to be invested at RATE for TIME and is compounded PERIOD.
i. Create an Excel document using formulas to determine the value of the given amount after the given time frame.
ii. Each compounding period must be displayed.
iii. Create a line graph, which represents your calculations.
iv. Ensure the final amount is clear.

PART TWO: INVESTING AND RECORDING SHARE PRICES (16 marks)
i. A company has been selected for you. If you wish to change this please consult your classroom teacher ensure your preferred company is different from your classmates. You will be given one lesson to research this part of the assignment and **you must submit your alternate company to the teacher.**
ii. Provide a brief description as to what your company does.
iii. What is the current share price of this company?
iv. Using the final amount from PART ONE, determine how many shares you will be able to purchase, given that you must pay a brokerage fee of $35.
v. Record the price of your shares every day for 2 weeks. Present this in a table, using screenshots as evidence of research.
vi. By hand, or using Excel, create a line graph which represents the change in your shares price over the two weeks.
vii. What is the value of your shares at the end of the two-week period? (Note: this is the amount that you cash out of the share market and use in Part Three)
viii. Did you make a profit or a loss?
iv. Calculate the profit/loss percentage

PART THREE: DECLINING BALANCE DEPRECIATION (7 marks)

Using the money that you have cashed out of the share market, you are able to purchase an item of your choice. Choose an item that will depreciate in value (use the declining balance depreciation formulae).

i. Provide a brief description of your item and determine why it is one that will depreciate in value. Evidence must be provided.

ii. If this item depreciates by RATE find the value of the item after TIME.

iii. At the end of TIME you sell the item for its depreciated value. Determine the profit/loss you have made since you were first gifted the monetary amount.

	SHARE COMPANY	PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Jemarli Dallas	BHP	$4000	4.5%	5 years	monthly	15.2%	11 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Jamie Dodds	NAB	$5000	5.6%	6 years	quarterly	14.2%	10 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Hayley Highlands	COMMBANK	$4500	3.2%	7 years	daily	14.1%	9 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Hayley Joyc	COLES	$3000	2.5%	8 years	weekly	14.8%	7 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Dione McCubbin	POINTSBET	$5500	4.3%	9 years	monthly	16.6%	8 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Charlee O'Connor	SUPER RETAIL GROUP	$6200	4.4%	10 years	quarterly	16.7%	6 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Zakary O'Connor	JB HIFI	$2400	4.6%	11 years	daily	15.4%	5 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Breanna Robertson	AIR NEW ZEAL.	$2500	5.1%	6 years	monthly	17.5%	10 years

		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Sophie Russell	WOOLWORTHS	$2800	6.2%	7 years	quarterly	12.3%	9 years
		PART ONE				PART THREE	
		MONEY	RATE	TIME	PERIOD	RATE	TIME
Ava Woodward	DOMINOS	$4300	3.8%	8 years	daily	14.6%	7 years

MARKING GUIDELINE

	0	1	2	3	4	5
PART ONE: COMPOUND INTEREST (9 marks)						
Summary of information	No summary of information	Information clearly provided				
Excel document		Used correct amounts but incorrect formula No compounding periods	Up to three errors in calculations	Two errors in calculations	One error in calculations	Correct amount Correct formula Represents the correct compounding period
Excel graph	No graph	Incorrect attempt at graph	Minor errors in graph	Correct graph which represents data accurately		
PART TWO: INVESTING AND RECORDING SHARE PRICES (16 marks)						
Selection of company	No company selected	Company selected with no or limited description on what the company does	Company selected with brief description on what the company does			
Research of shares	No research provided	Share price given with evidence provided				
Calculation of shares	No calculations	Multiple errors in calculations	Minimal errors made in calculations	Clear and accurate calculations of how many shares can be purchased taking into consideration the brokerage fee		
Recording of share prices	No record of share prices	Each day is recorded with no or minimal evidence provided	Days are missing	Each day is included for the 2 week period with evidence provided		
Graph of share prices	No graph provided	Errors in graph	Accurate graph with axis unlabelled	Detailed showing all information from the table with labels on each axis		
Value of shares	No calculation provided	Calculation errors	Calculates the final amount after the 2 week period			
Profit/loss	No calculations provided	Identifies if a profit/loss has been made or correctly calculates the percentage	Identifies if a profit/loss has been made and correctly calculates the percentage			
PART THREE: DEPRECIATION (7 marks)						
Product research	No product	Product with no evidence Product is out of price range	Product with evidence and justification. Product is within price range			
Summary of information	No information	The rate and time given is clearly written				
Depreciation	No calculations	Calculations attempted with errors	Correct calculations made			
Value	No calculations	Only uses the salvage value	Correctly calculates the remaining value			