

**MARK SCHEME**

Subject Code: 10

MATHEMATICS SPECIMEN PAPER

Paper Code: 01

Paper 1 Mathematics 1

2026

Maximum Mark: 60

ANNOTATIONS

The following annotations are used in marking this paper and should be used by markers.

Annotation	Use or meaning
√	Correct and relevant point made in answering the question.
X	Incorrect point or error made.
M	Method marks – for a correct method applied to appropriate numbers
A	Accuracy marks – depend on M marks, hence M0 A1 is not possible
B	Independent of method marks – for a correct answer, a partially correct answer or intermediate stage
FT	Work can be followed through after an error
AG	Answer given
ISW	Ignore subsequent working (after correct answer obtained)
CAO	Correct answer only
OE	Or equivalent
SOI	Seen or implied
DEP	Dependent on the previous mark(s)
OF	Own figure

Generic Marking Principles

These generic marking principles must be followed by all markers when assessing candidates' responses. They should be used together with the specific details provided in the mark scheme or the generic level descriptors for each question. Every question paper and its corresponding mark scheme will also adhere to these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in accordance with:

- the specific content of the mark scheme or the generic level descriptions provided for the question,
- the specific skills identified in the mark scheme or descriptors, and
- the standard of performance expected from candidates, as exemplified through standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Only whole marks are to be awarded. No half marks or fractional marks should be given under any circumstances.

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded positively:

- Credit must be given for correct and valid responses, as outlined in the mark scheme.
- Where a candidate's response exceeds the expected content or extends beyond the syllabus in a relevant way, appropriate credit may be awarded, in consultation with the Chief Marker.
- Marks are awarded when the candidate demonstrates clear evidence of knowledge, understanding, or skill.
- Marks must not be deducted for incorrect answers, omissions, or irrelevant material.
- Spelling, punctuation, and grammar should only be considered if explicitly stated in the question's assessment criteria. However, responses must be sufficiently clear in meaning.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently across all scripts, including cases where candidates do not follow specific instructions or where generic level descriptions are applied. For example, if a candidate writes more answers than required or responds in the wrong format, the marker should still assess the response based on the marking scheme. If the marking scheme includes a penalty for not following instructions, it should be applied. If no penalty is mentioned, valid responses should still be credited.

In the case of generic level descriptions such as "basic understanding" or "detailed explanation", all markers must interpret and apply these levels in the same way across all scripts. This helps ensure that every candidate is marked fairly and consistently.

GENERIC MARKING PRINCIPLE 5:

The full range of marks available in the mark scheme must be used where appropriate. However, the actual distribution of marks may depend on the quality of responses observed.

GENERIC MARKING PRINCIPLE 6:

Marks must be awarded strictly based on the criteria and expectations defined in the mark scheme. Judgments should not be influenced by grade thresholds, grade descriptions, or assumptions about overall candidate performance.

Point-Based Marking

Guidance:

- DO credit answers which are worded differently from the mark scheme if they clearly convey the same meaning (unless the mark scheme requires a specific term).
- DO credit alternative answers/examples which are not written in the mark scheme if they are correct.
- DO NOT credit answers simply for using a 'key term' unless that is all that is required. (Check for evidence it is understood and not used wrongly.)
- DO NOT credit answers which are obviously self-contradicting or trying to cover all possibilities.
- DO NOT give further credit for what is effectively repetition of a correct point already credited unless the language itself is being tested. This applies equally to 'mirror statements' (i.e. polluted/not polluted).
- DO NOT require spellings to be correct, unless this is part of the test. However, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. Corrasion/Corrosion).

Calculation:

- The mark scheme will outline the steps for the most likely correct method(s), including the marks allocated for each step, the correct answer(s), and the marks awarded for the final answer.
- If working or explanation is required to obtain full credit, this will be clearly stated in both the question paper and the mark scheme. In all other cases, a correct final answer should receive full marks even if no supporting working is provided.
- If a candidate applies a valid method that is not specifically included in the mark scheme, equivalent marks should be awarded for achieving equivalent stages of the solution.
- Where a candidate uses an incorrect figure obtained from earlier working, the 'own figure rule' applies. Full marks may still be awarded provided the method used is correct and complete. Additional guidance or exceptions to this principle will be specified in the mark scheme where necessary.

Assessment Objectives:**AO1: Knowledge and understanding of mathematical techniques**

- Recall and apply mathematical knowledge and techniques
- Carry out routine procedures in mathematical and everyday situations
- Understand and use mathematical notation and terminology
- Perform calculations with a calculator
- Organise, process, present and understand information in written form, tables, graphs and diagrams
- Estimate, approximate and work to degrees of accuracy appropriate to the context and convert between equivalent numerical forms
- Understand and use measurement systems in everyday use
- Measure and draw using geometrical instruments to an appropriate degree of accuracy
- Recognise and use spatial relationships in two and three dimensions.

AO2: Analyse, interpret and communicate mathematically

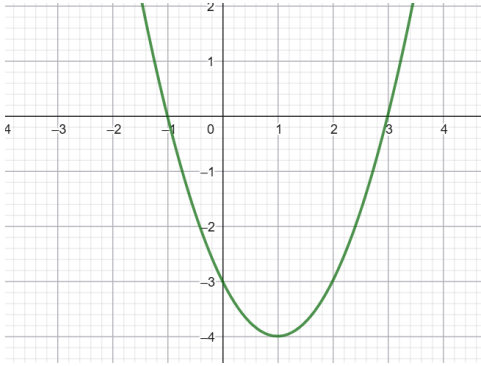
- Analyse a problem and identify a suitable strategy to solve it, including using a combination of processes where appropriate
- Make connections between different areas of mathematics
- Recognise patterns in a variety of situations and make and justify generalisations
- Make logical inferences and draw conclusions from mathematical data or results
- Communicate methods and results in a clear and logical form
- Interpret information in different forms and change from one form of representation to another.

SECTION A (10 Marks)

Question I	Answer	Marks
1	B	1
2	D	1
3	D	1
4	C	1
5	A	1
6	B	1
7	A	1
8	B	1
9	C	1
10	C	1

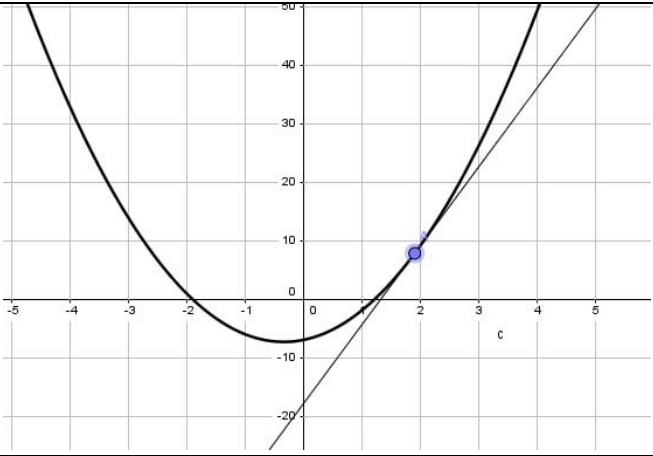
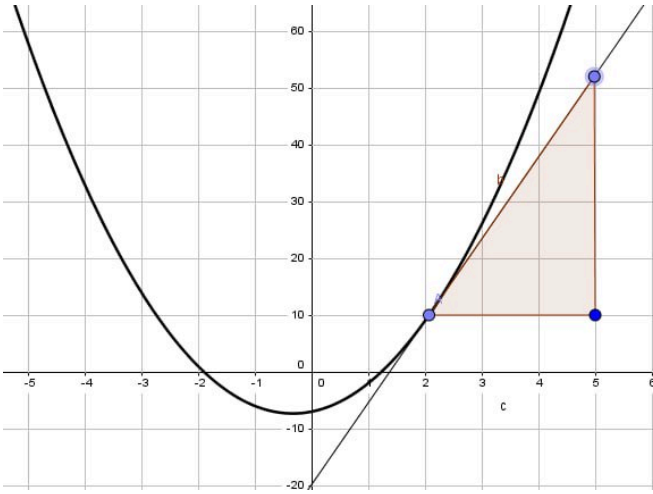
SECTION B (60 Marks)

Question	Answer	Marks	Additional Guidance
II(1)	For identify of two slopes $m_1 = 3$ $m_2 = -\frac{1}{3}$	M1	Line 1: $y = 3x + 2$ slope $m_1 = 3$ Line 2: $y = -\frac{1}{3}x + 5$ slope $m_2 = -\frac{1}{3}$ $m_1.m_2 = 3 \times -\frac{1}{3} = -1$
	For verifying product of slope Since the product of slopes is -1 , the lines are perpendicular.	A1	$m_1.m_2 = 3 \times -\frac{1}{3} = -1$
		2	
II(2)	States that the line slopes downward from left to right / negative slope	B1	
	As x increases, the value of y also decreases	B1	
		2	

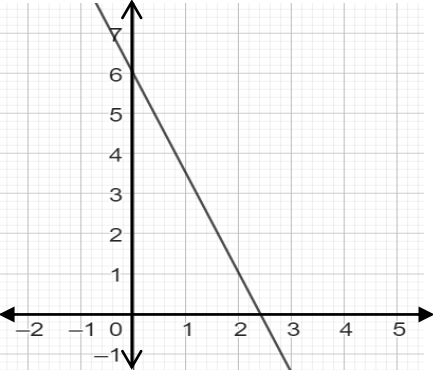
II(3)	For recognizing new length and width	M1	$let\ width = x$ $length = 2x$ given new dimension : $new\ length = 2x + 4$ $new\ width = x - 3$
	For solving the equation using area formula and getting $x^2 - x - 272 = 0$	M1	OE $2x^2 - 2x - 544 = 0$
	For finding the value of Length and width $width = 17\ m$ $Length = 34\ m$	A1	$(x - 17)(x + 16) = 0$ $x = 17, x = -16$ $width = 17\ m$ $Length = 2 \times 17$ $= 34\ m$
		3	
II(4)	Correct sketch showing a parabola crossing the x-axis at two points 	M1	Shape and intersections evident.

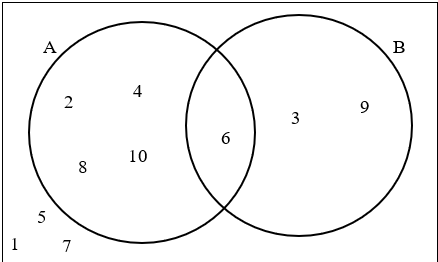
	x-intercepts correctly identified (-1,0) and (3,0)	A1	x -intercept (-1,0) and (3,0) Both intercepts required.
II(5)	Forms the equations $3x + 2y = 170$ $2x + 3y = 160$	M1	Let price of a sandwich = x , juice = y Given: From monday $3x + 2y = 170$ From Tuesday $2x + 3y = 160$
	Obtains the value of sandwich x and Juice y $x = 38$ and $y = 28$ correctly concludes that the student's claim is incorrect .	A1	$\left. \begin{array}{l} 3x + 2y = 170 \\ 2x + 3y = 160 \end{array} \right\} \text{solving}$ Student claims: - Sandwich = Nu. 30 - Juice = Nu. 50 But actual values are: $38 \neq 30$ $28 \neq 50$ ✓ Therefore, the student's claim is incorrect. $x = 38$ and $y = 28$
III(1)(a)	Identify few values	M1	

	$i. h = 0 \quad k = -0.5 \quad a = 2$ For correct mapping: $(x, y) \rightarrow (x, 2y - 0.5)$		
		1	
III(1)(b)	Identify few values $i. h = -1 \quad k = -3 \quad a = -4$ For correct mapping: $(x, y) \rightarrow (x - 1, -3y - 4)$	M1	$i. (x, y) \rightarrow (x + h, ay + k)$
		1	
III(2)	States that $\frac{dy}{dx}$ represents the gradient (or instantaneous rate of change) of the curve at a point.	B1	OE "slope of the tangent" or "rate of change of y with respect to x ".
	States that at $x = 1$, $\frac{dy}{dx}$ gives the gradient of the tangent to the curve at the point where $x = 1$.	B1	Must relate the derivative to the tangent at $x = 1$.
	States that a tangent (or gradient triangle on the tangent) would be needed from the graph to determine/estimate the gradient	B1	OE Any valid description of using the tangent and rise/run to estimate the gradient from the graph.
		3	
III(3)(a)	Tangent correctly drawn at any point	B1	The line must touch the curve at any point and follow the direction of the curve.

			
		1	
III(3)(b)	Suitable right-angled triangle drawn showing rise and run. 	B1	Accept any correctly constructed gradient triangle.
		1	

III(3)(c)	States that the gradient represents the rate of change (or slope) of the function at P.	B1	Accept "instantaneous rate of change" or "slope of the curve at P".
		1	
III(4)	Describes the function as increasing when x is slightly less than 1 and decreasing when x is slightly greater than 1.	B1	Accept equivalent descriptions such as "rises then falls" or "increases then decreases."
	States that the turning point is a maximum point.	A1	Must correctly identify the nature of the turning point.
		2	
IV(1)(a)	For correct inequality. $3x + 2y \geq 6$	M1	
		1	
IV(1)(b)	Correct conclusion Yes, the boundary line is included in the solution set	A1	This is because the inequality has the sign " $\geq$ " (greater than or equal to), which means all points on the boundary line satisfy the inequality. Therefore, the boundary line is solid .
		1	
IV(2)	Correct y- intercept and slope form , $y = -\frac{5}{2}x + 6$	B1	$y = mx + c$ Finds at least two correct points from the equation (e.g., using a table of values or intercepts) OR correctly identifies x-intercept and y-intercept

	Correct sketch 	B1 • Draws a straight line passing through correct points • Line is reasonably accurate and labeled correctly	
		2	
IV(3)	Correct multiplication setup and method: $1US\ dollar = 84.50\ BTN$	M1	$1US\ dollar = 84.50\ BTN$ $25.75 \times 84.50 = 84.50(25 + 0.75)$
	Correct final answer with proper decimal rounding: $\\$25 = Nu\ 2175.88$		$= 2112.50 + 63.375$ $= 2175.875$ $= Nu\ 2175.88$
			2

IV(4)(a)	Since $A \cap B \neq \emptyset$, the sets are NOT disjoint .	M1	The claim is incorrect because they share a common element (6) shown in the overlap region of the Venn diagram.
	The claim is incorrect	1	
IV(4)(b)	To make sets disjoint: $A \cap B = \emptyset$ Condition satisfied	M1	Current common element is: 6 Remove 6 from A. New set: $A = \{2, 4, 8, 10\}$ Now: $A \cap B = \emptyset$, Condition satisfied
		1	
IV(4)(c)		M1	
	.	1	

V(1)	Writes a correct 5×3 matrix OR correct 3×5 matrix $\begin{matrix} & 2 & 3 & 5 \\ 6 & \begin{bmatrix} 1 & 1 & 0 \end{bmatrix} \\ 9 & \begin{bmatrix} 0 & 2 & 0 \end{bmatrix} \\ 12 & \begin{bmatrix} 2 & 1 & 0 \end{bmatrix} \\ 15 & \begin{bmatrix} 0 & 1 & 1 \end{bmatrix} \\ 18 & \begin{bmatrix} 1 & 2 & 0 \end{bmatrix} \end{matrix}$	M2	OE uses correct order of row (2, 3, 5) and columns (6, 9, 12, 15, 18) the majority of values are correct with only minor errors
		2	
V(2) (a)	Village A is not directly connected to village D	A1	<i>“No direct connection between A and D, (value is 0)</i>
		1	
V(2)(b)	Village B has 2 direct connections	A1	Village B has 2 direct connections (B to A and B to D)
		1	
V(3) (a)	Addition/Subtraction $A \pm E$	M1	Both (both are 2×2)
		1	
V(3)(b)	Multiplication	M1	

	writes ANY correct 3 valid products		• $A \times A$ • $A \times B$ • $A \times F$ • $B \times C$ • $C \times A$ • $D \times D$ • $E \times F$ • $F \times D$ Any 3 correct multiplication pairs = 1 mark No mark if: • fewer than 3 correct OR incorrect rule used
		2	
V(4)	Each element has a unique (row, column) position Order matters: $(i, j) \neq (j, i)$ Swapping leads to incorrect identification of elements		states that:

			- Each element in a matrix has a unique position using row and column numbers (i, j) - OR explains that row and column together identify an element clearly Effect of interchanging row and column Award 1 mark if the student: - Explains that swapping row and column gives a wrong element / incorrect position - OR states that (i, j) is not the same as (j, i) and leads to misidentification - Accept correct explanation even if wording is not formal - Full marks require both ideas: uniqueness + consequence of swapping Partial understanding = 1 mark only
V(5)	Correct answer: Matrix Q Because it allows $A \rightarrow B \rightarrow C$ and also direct $A \rightarrow C$	B1	
	Any correct comparison of routes	B1	In P, there is no direct $A \rightarrow C$ and no alternative one-stop route

			- In Q, there is direct route A→C and also indirect route A→B→C - Hence Q provides more connectivity from A to C
VI(1)	For correct $24\sqrt{x^m} \times \sqrt{3} = 24x^7\sqrt{3x}$	B1	$\sqrt{36x^m} \times \sqrt{48} = 24x^7\sqrt{3x}$ $6\sqrt{x^m} \times 4\sqrt{3} = 24x^7\sqrt{3x}$ $24\sqrt{x^m} \times \sqrt{3} = 24x^7\sqrt{3x}$
	For correct $m = 15$	A1	$x^m = x^7\sqrt{x}$ $x^m = x^{15}$ $m = 15$
		2	
VI(2)	For eliminating the radicals by squaring both expressions:	B1	$5\sqrt{2} = \sqrt{25 \times 2} = \sqrt{50}$ $13 = \sqrt{13 \times 13} = \sqrt{169}$
	For compare the expressions by squaring both sides and comparing the results, without using decimal values.	B1	$\sqrt{169} > \sqrt{50}$
		2	
VI(3)	The statement is incorrect , because $\sqrt{(a^2)} \neq a$ for negative value of a	M1	$let\ a = -3$ $\sqrt{(a^2)} = \sqrt{(-3)^2} = 3$

	Gives correct reasoning using $\sqrt{(a^2)} \neq a$ OR valid counterexample	A1	Here $a = -3$ so $\sqrt{(a^2)} \neq a$
		2	
VI(4)	Correctly finds both maturity amounts (or correct method), e.g. ○ Scheme A $\approx$ Nu 24,200 ○ Scheme B $\approx$ Nu 24,310	M1	Scheme A (Annual compounding): $A = 20000(1.01)^2$ $= Nu\ 24200$ So, Scheme A = Nu 24,200 Scheme B (Half-yearly compounding): $A = 20000\left(1 + \frac{0.10}{2}\right)^4$ $= 20000(1.05)^4$ $= Nu\ 24310$ So, Scheme B $\approx$ Nu 24,310
	• States Scheme B is more beneficial, AND • Gives a valid reason such as: -more frequent compounding (half-yearly) -interest is added more often -interest-on-interest effect increases returns	B1	

VI(5)	- Option A gives Nu 800 per year - Option B gives Nu 600 per year	B1	Option A: $\begin{aligned} \text{Dividend amount} &= r\% \times n \times F.V \\ &= 0.08 \times 100 \times 100 \\ &= \text{Nu } 800 \end{aligned}$ $\begin{aligned} \text{Dividend amount} &= r\% \times n \times F.V \\ &= 0.06 \times 125 \times 100 \\ &= \text{Nu } 600 \end{aligned}$
	Correct identification that Option A gives higher return Clear comparison given	B1	Option A gives higher return on investment Option A is better for Rita because it gives a higher annual dividend income.