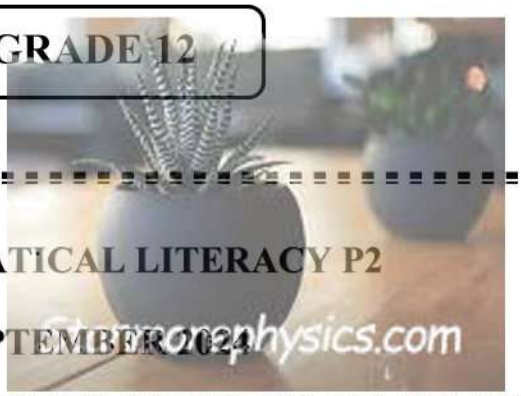
education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12



MATHEMATICAL LITERACY P2

SEPTEMBER 2024

MARKS: 150

TIME: 3 hours

This question paper consists of 13 pages and an addendum with 3 annexures.

INSTRUCTIONS AND INFORMATION

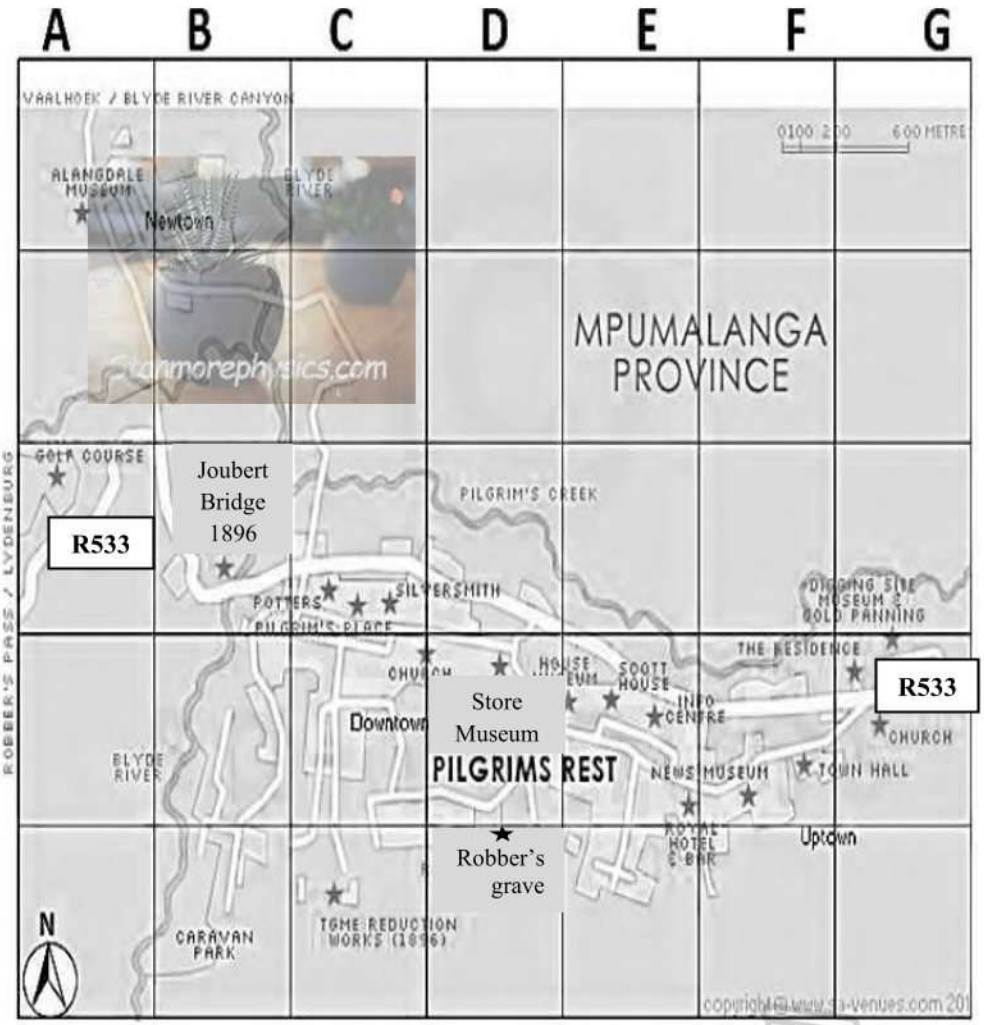
1. This paper consists of FIVE questions. Answer ALL the questions.
2. Use the ANNEXURES in the ADDENDUM to answer the following questions:

   ANNEXURE A for QUESTION 2.1
   ANNEXURE B for QUESTION 2.2
   ANNEXURE C for QUESTION 4.3

3. Number the answers correctly according to the numbering system used in this question paper.
4. Start EACH question on a NEW page.
5. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
6. Show ALL calculations clearly.
7. Round of ALL final answers appropriately according to the given context, unless stated otherwise.
8. Indicate units of measurement, where applicable.
9. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
10. Write neatly and legibly.

QUESTION 1

1.1 Pilgrim's Rest is a small museum town in the Mpumalanga province of South Africa. This town is protected as a provincial heritage site due to its historic value.
Below is the map showing places of interest (represented by a star) in this town.



[Adapted from www.sa-venues.com]

Use the information above to answer the questions that follow.

1.1.1 Name the provincial road shown on the map. (2)

1.1.2 State the grid reference of Joubert Bridge. (2)

1.1.3 Complete: The scale used in the map is called a … scale. (2)

1.1.4 Name the tourist attraction, in D4, that lies North of Robber's Grave. (2)

1.1.5 Mpumalanga province covers an area of 76 495 km^2. The area of the whole of South Africa is 1 220 813 km^2.

Calculate, rounded off to ONE decimal place, the percentage that Mpumalanga province make out of the whole of South Africa. (3)

1.2 ABC Company won a tender to supply road signposts of TYPE 1 and TYPE 2 as shown in the pictures below.

TYPE 1	**TYPE 2**
	
Each side of the triangle in the TYPE 1 road sign is equal to 500 mm.	Radius (r) = 25 cm

[Source: bing.com /images]

Use the information above to answer the questions that follow.

1.2.1 Choose, from the list below, the CORRECT formula to calculate the perimeter of a TYPE 1 road sign.

A $P = 2(l + w)$

B $P = \frac{1}{2}(b \times h)$

C $P = \text{side} \times \text{side} \times \text{side}$

D $P = \text{side} + \text{side} + \text{side}$ (2)

1.2.2 Convert the length of each side of TYPE 1 road sign to metres. (2)

1.2.3 Determine the diameter of a TYPE 2 road sign. (2)

1.3 Below are the items that Ivy bought at the wholesaler.

ITEMS THAT IVY BOUGHT AND THEIR MASS

 2 kg Sugar	 12,5 kg Flour	 3 packets of Macaroni Total mass 9 000 g	 10 kg Mealie Meal
 3 Pilchards tins Total mass 1 200 g	 Wheat Bix 1,35 kg	 2 kg washing powder	 12 bars of 100 g soap

[Adapted from www.makro.co.za]

Use the information above to answer the questions that follow.

1.3.1 Determine the mass of ONE tin of Pilchards. (2)

1.3.2 Ivy carried a bag that could hold items with a total mass of 10 kg.
Name the item that could NOT be placed in this bag. (2)

1.3.3 The macaroni in the three packets is repacked into four equally sized containers.

Determine, in kg, the mass of the macaroni in EACH container. (3)

1.4 TABLE 1 below shows a list of concepts and explanations or definitions thereof, used in Mathematical Literacy.

TABLE 1 : CONCEPTS AND EXPLANATIONS

`COLUMN A		COLUMN B	
1.4.1	Map Scale	A	The boundary of a circle/perimeter of a circle
1.4.2	Circumference	B	Two or more events happening at once
1.4.3	Compound events	C	Straight line passing through the centre of a circle, touching the circle at opposite ends
		D	The distance from the centre of the circle to any point on the circumference of the circle
		E	Ratio of the distance in real life compared to the same distance on a map
		F	All possible outcomes of an experiment

Use TABLE 1 above to choose the explanation or definition from COLUMN B that matches a concept in COLUMN A. Write only the letter (A – F) next to the question numbers (1.4.1 to 1.4.3), e.g. 1.4.4 H. (6)

[30]

QUESTION 2

2.1 Dr Brooks decided to take his family to the George Ignatieff Theatre for a musical concert. ANNEXURE A shows the seating plan of the George Ignatieff Theatre in Toronto.

Use ANNEXURE A to answer the questions that follow.

2.1.1 Write down the total number of seats in the theatre. (2)

2.1.2 Seats H1 to H13 are reserved for wheelchair users. Write in simplest form the ratio of the number of seats for people in wheelchairs to the number of seats for people NOT in wheelchairs. (4)

2.1.3 State the compass direction from seat G30 towards the stage. (2)

2.1.4 Dr Brooks is seated in the middle block, third row from the back. His seat is exactly in the middle of the row.

Name the row and seat number where he is seated. (2)

2.1.5 Dr Brook's wife is seated in seat F15. She is invited to join her favourite artist on stage.

Describe the route from her seat to the stage. (3)

2.1.6 Determine the probability of randomly choosing a spectator to join the artist on stage if 62,5% of the seats in the theatre are occupied. (3)

2.2 Dr Brooke and his family stay in a townhouse. ANNEXURE B shows the floorplan of their townhouse.

Use ANNEXURE B to answer the questions that follow.

2.2.1 Define the concept *floor plan*. (2)

2.2.2 Determine the total number of doors on the floorplan. (2)

2.2.3 Which ONE of the following statements regarding the porch is CORRECT?

A The porch is on the West elevation.
B The porch is on the East elevation.
C The porch is on the North elevation. (2)

2.2.4 The dimensions of BEDROOM 1 on the plan are as follows:

Length = 40 mm and width = 32 mm

The area of the window must be at least 12,5% of the floor area of the bedroom.
The actual window is 256 cm high.

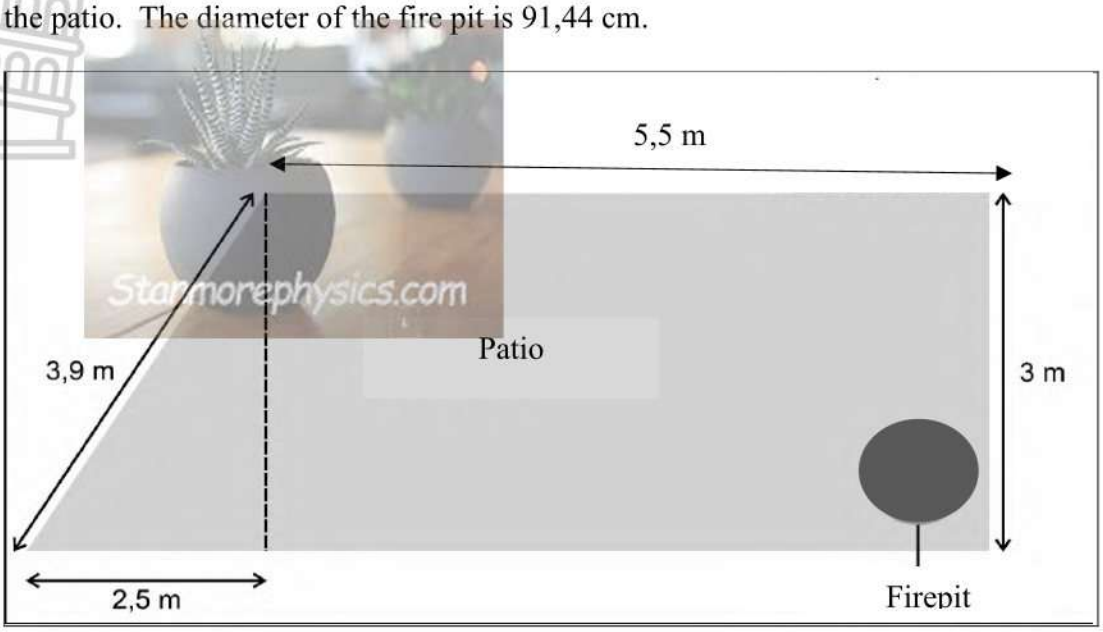
Calculate the actual width of the window.

You may use the following formula:

Area of a rectangle = length × width (9)
[31]

QUESTION 3

3.1 Abel wants to build a backyard patio using bricks. The patio will be fenced and paved. Abel will also add a round 12-inch-high fire pit, built with bricks in one of the corners of the patio. The diameter of the fire pit is 91,44 cm.



Use the information given above to answer the questions that follow.

3.1.1 Calculate the total length of the fencing required for the patio. (3)

3.1.2 The height of the fire pit is 30,48 cm.

Calculate, in cm^2, the lateral surface area of the fire pit.

You may use the following formula:

Lateral surface area = $2 \times 3,142 \times$ radius $\times$ height (4)

3.1.3 Show, using ALL calculations, that the surface area of the patio is approximately 20 m^2.

You may use the following formulae:

Area of rectangle = length $\times$ width

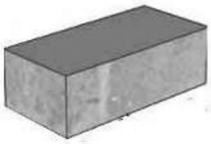
Area of a circle = 3,142 $\times$ radius^2

Area of a triangle = $\frac{1}{2}$ $\times$ base $\times$ height (9)

3.2 The bricks that will be used to pave the patio (area 20 m^2) have the dimensions:

length = 0,215 m, width = 0,1025 m and height = 6,5 cm

The mass of one brick is 3,276 kg.



Use the information above to answer the questions that follow.

3.2.1 Determine the number of bricks needed to pave the patio excluding the fire pit.

You may use the following formula:

Area = length × width (5)

3.2.2 Convert the mass of all the bricks needed to tons.

NOTE: 1 kg = 0,001 ton (4)

3.3 TABLE 2 below shows the relationship between the number of workers Abel employs and the time taken to build the patio.

TABLE 2: RELATIONSHIP BETWEEN THE NUMBER OF WORKERS AND THE TIME TAKEN

Number of workers	1	2	3	**B**	5
Time in days	60	**A**	20	15	12

Use the information above to answer the questions that follow.

3.3.1 Determine the missing values **A** and **B.** (3)

3.3.2 State the type of proportion represented by the relationship between the number of workers employed and time taken to build the patio. (2)

3.4 Ruth is a mother to twins Nick and Nicolene. She is very health conscious and regularly monitors their Body Mass Index (BMI). On a particular day, she recorded the twins' mass and height as follows:

TWIN	MASS	HEIGHT
NICK	56 kg	1,65 m
NICOLENE	45 kg	60 inches

NOTE: 1 cm = 0,3937 inches

Use the information above to answer the questions that follow.

3.4.1 Convert, rounded off to TWO decimal places, Nicolene's height to metres. (3)

3.4.2 Ruth states that, the difference between the twins' BMI is less than 1 kg/m^2.

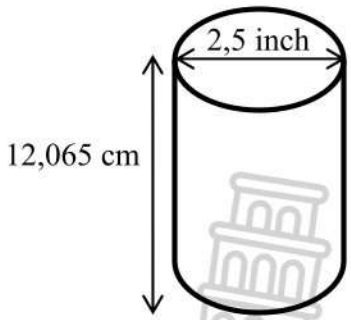
Verify, showing ALL calculations, whether her statement is CORRECT.

You may use the following formula: $\textbf{BMI} = \frac{\textbf{Mass in kg}}{(\textbf{Height in m})^2}$ (6)

[39]

QUESTION 4

4.1 The picture and diagram below represent an American cooldrink can.

PICTURE OF A COOLDRINK CAN	DIAGRAM OF A COOLDRINK CAN
	

NOTE: 1 inch = 2,54 cm

Use the information above to answer the questions that follow.

4.1.1 Show with calculations that the volume of the cooldrink can is 382 cm^3.

You may use the following formula:

Volume = 3,142 × radius^2 × height (6)

4.1.2 The can is only filled to 95% of its volume.

Calculate, rounded off to the nearest mℓ, the volume of the can.

NOTE: (1 cm^3 = 1 mℓ) (4)

4.2 Lesego would like to build a modern kitchen. She approached a company that builds three-dimensional (3D) model of buildings. This must represent a scaled model of an actual kitchen that Lesego requires.

3D VIEW OF ACTUAL KITCHEN	**TABLE USED FOR SCALED MODEL**
	

The actual dimensions of the kitchen are length = 4,8 m; width = 4,2 m and height = 3 m. The 3D scale model of the kitchen must fit on a rectangular table top with dimensions: length = 1,75 m and width = 1 m.

Only 50% of the table top area may be used for the scaled model.

Verify, showing ALL calculations, whether a scale of 1 **:** 10 will be suitable for the scale model. (5)

4.3 Mr Modise stays in Horizon View. He works in Rosebank and travels by bus to and from work daily. ANNEXURE C shows different bus timetables. It is only valid during the week.

Use the bus timetable on ANNEXURE C to answer the questions that follow.

4.3.1 Calculate the time taken to travel with BUS 1 from Horizon View to Rosebank. (3)

4.3.2 Mr Modise gets off the bus at 07:17 and walks for 15 minutes to his workplace. He rests for 10 minutes before he starts to work. He works 9 hours and 45 minutes including breaks per day.

Verify, showing ALL calculations, whether Mr Modise will knock off at 17:00. (4)

[22]

QUESTION 5

5.1 Phumeza's mother stays in Malelane. She wants to come and visit her daughter, who stays in Johannesburg.

5.1.1 The map distance between Malelane and Johannesburg is measured as 10,8 cm. The scale of the map is 25 mm : 100 km.

Determine the actual distance between the two towns. (3)

5.1.2 Phumeza's mother left Malelane at 08:00 a.m. She drove at an average speed of 120 km/h.

Verify, showing ALL calculations, whether she will arrive in Johannesburg before or after midday/12:00.

You may use the following formula: $\textbf{Time} = \frac{\textbf{Distance}}{\textbf{speed}}$ (6)

5.2 Phumeza's mother bought her a flower bouquet with roses only. The flower bouquet consists of 12 red roses, 15 pink roses and other roses with different colours.

Use the information above to answer the questions that follow.

5.2.1 Determine the number of roses in the bouquet if the roses with different colours are 10% of the total number of roses? (3)

5.2.2 Phumeza stated that the probability of randomly selecting a rose with a different colour is 0,1.

Verify, showing ALL calculations, whether her statement is VALID. (4)

5.3 Sipho is a vendor at the local flea market. She sells different types of jams. She put the jam in jars/bottles shown below.

Use the information above to answer the questions that follow.

5.3.1 The jars must be sterilized at the temperature of 275 °F before use. Convert this temperature to °C.

You may use the following formula:

$$°F - \mathbf{32}^{\circ} = \frac{\mathbf{9}}{\mathbf{5}} \times °C$$ (4)

5.3.2 The jam jars will be packed in a cardboard box as follows:
Six rows of three jars, and two jars high. A tiny space of 0,8 cm around each jar is allowed.

(a) Determine the dimensions of the cardboard box, where in the jam jars will be packed. (5)

(b) Determine, in m^3, the volume of the cardboard box in QUESTION 5.3.2 (a).

You may use the following formula:

Volume of the box = length × width × height (3)

[28]

TOTAL: 150

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GRADE 12

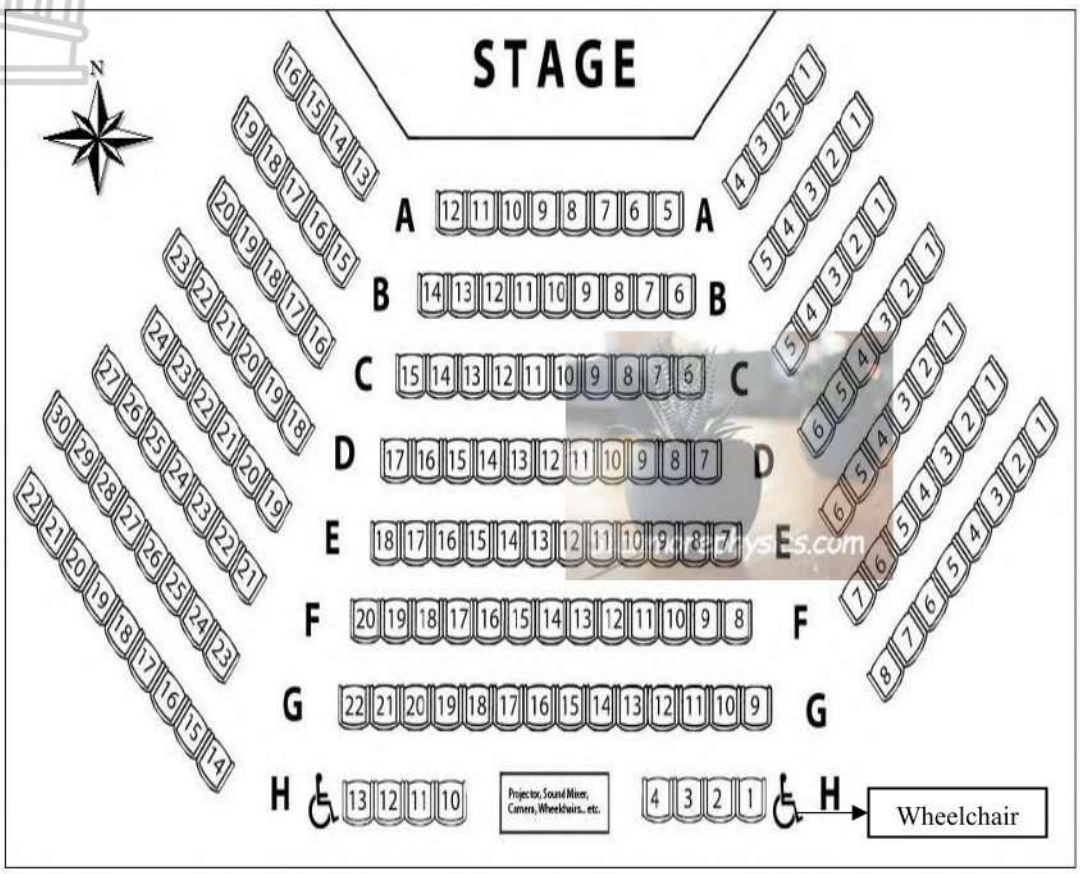
MATHEMATICAL LITERACY P2
ADDENDUM
SEPTEMBER 2024

This addendum consists of 4 pages with 3 annexures.

ANNEXURE A

QUESTION 2.1

SEATING PLAN OF GEORGE IGNATIEFF THEATRE IN TORONTO

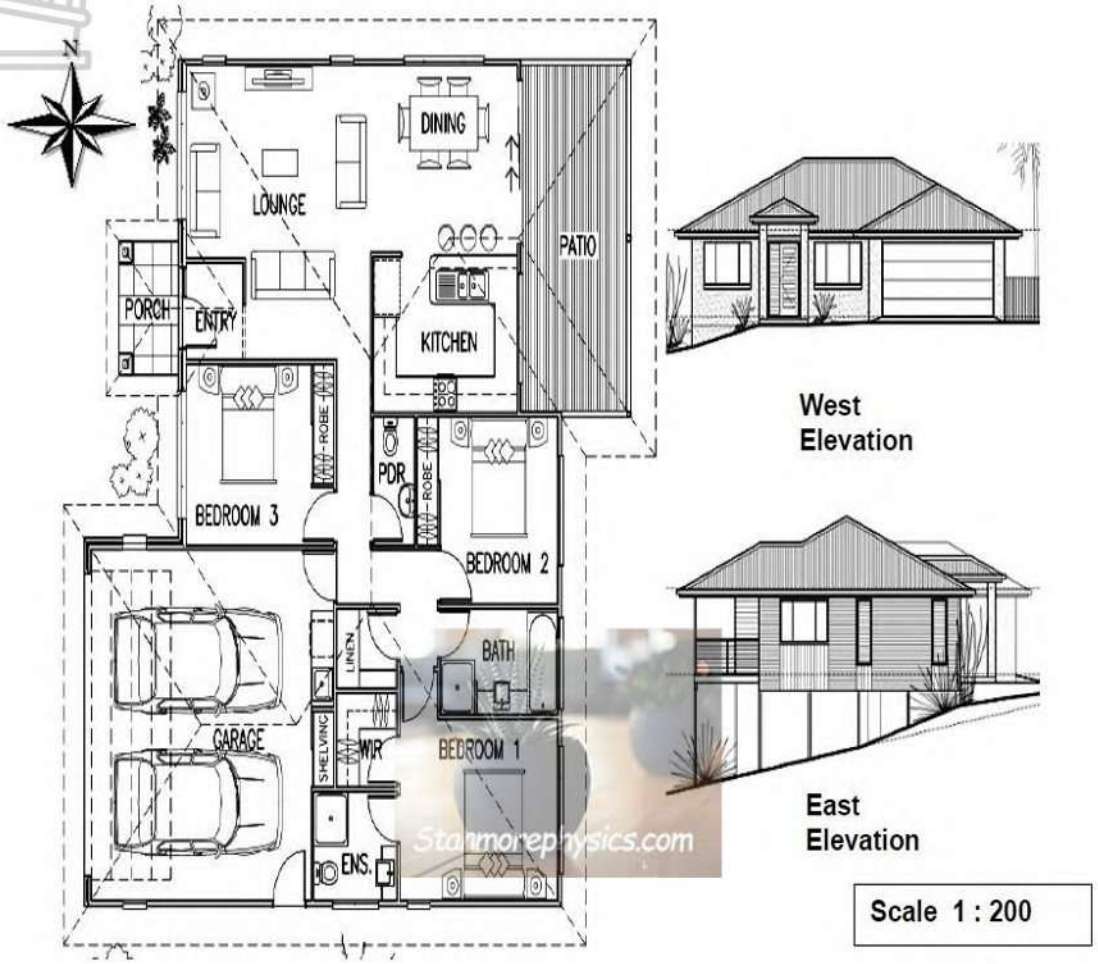


[Source: www.http//Levin & Associates Architects]

ANNEXURE B

QUESTION 2.2

FLOOR PLAN OF DR. BROOKE'S TOWN HOUSE



KEY:	
Window	Door
Sliding Door	Garage Door

ANNEXURE C

QUESTION 4.3

BUS TIMETABLE FROM WESTGATE CENTRE

430 Westgate Centre

Sandton Square via ROSEBANK

	BUS 1	BUS 2	BUS 3
FROM WESTGATE CENTRE	6:00	6:15	6:30
Horison View	6:02	6:17	6:32
Horison	6:05	6:20	6:35
Roodepoort-North	6:10	6:25	6:40
Discovery	6:20	6:35	6:50
Florida	6:30	6:45	7:00
Maraisburg	6:40	6:55	7:10
Delarey	6:50	7:05	7:20
Newlands	6:55	7:10	7:25
Sophiatown	6:57	7:12	7:27
Greymont	6:59	7:14	7:29
Montgomery Park	7:04	7:19	7:34
Parktown-North	7:12	7:27	7:42
Rosebank	7:17	7:32	7:47
Illovo	7:20	7:35	7:50
Sandton Square	7:30	7:45	8:00
Rivonia	…….	…….	8:10
Sunninghill	…….	…….	8:25

[Source: https://www.gapbs.co.za]

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GRADE/GRAAD 12

MATHEMATICAL LITERACY P2/
WISKUNDIGE GELETTERDHEID V2
SEPTEMBER 2024
MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
M	Method/*Metode*
MA	Method with accuracy/*Metode met akkuraatheid*
MCA	Method with consistent accuracy/*Metode met volgehoue akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/a graph/document/ diagram/*Lees vanaf tabel/grafiek/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in formule*
O	Opinion/Explanation/Reasoning/*Opinie/Verduideliking/Redenasie*
P	Penalty, e.g. for no units, incorrect rounding off, etc/*Penalisasie, bv. vir geen eenhede, verkeerde afronding, ens.*
R	Rounding off/*Afronding*
NPR	No penalty for correct rounding/*Geen penalisasie vir korrekte afronding nie*
AO	Answer only/*Slegs antwoord*

These marking guidelines consist of 12 pages/
Hierdie nasienriglyne bestaan uit 12 bladsye.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt to a question and NOT redone the solution, mark the crossed out (cancelled) version.
- Consistent accuracy (CA) applies in ALL aspects of the marking guidelines; however, it stops at the second calculation error.
- NOTE: consistent accuracy (CA) does not apply in cases of a breakdown.
- If the candidate presents any extra solution when reading from a graph, table, layout plan and map, then penalize for every extra item presented.
- As a general marking principle, if a candidate has incurred one mistake and there is evidence of sound mathematics thereafter, then that candidate should lose one mark only.
- Rounding is an independent mark.
- In opinion type questions marks will only be awarded if relevant calculations are shown.

LET WEL:

- *As 'n kandidaat 'n vraag TWEE KEER beantwoord, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord van 'n vraag doodtrek (kanselleer) en nie oordoen nie, sien die doodgetrekte (gekanselleerde) poging na.*
- *Volgehoue akkuraatheid (CA) word in ALLE aspekte van die nasienriglyne toegepas, dit hou op by die tweede berekeningsfout.*
- *Let wel: volgehoue akkuraatheid (CA) geld nie in die geval van 'n afbreuk nie.*
- *Wanneer 'n kandidaat aflesings vanaf 'n grafiek, tabel, uitlegplan en kaart geneem en ekstra antwoorde gee, penaliseer vir elke ekstra item.*
- *'n Algemene nasienbeginsel is dat indien 'n kandidaat een fout maak en daarna voortgaan met korrekte wiskunde, dat die kandidaat slegs een punt verloor.*
- *Afronding tel as 'n onafhandlike punt.*
- *In Opinie tipe vrae sal punte slegs toegeken word indien relefante berekeninge getoon word.*

QUESTION/*VRAAG* 1 [30 MARKS/*PUNTE*] Answer only AO – full marks			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1.1	R533✓✓RT	2RT reading from the map/*lees vanaf die kaart* (2)	M&P TL1 E
1.1.2	B3✓✓A	1A B 1A 3 (2)	M&P TL 1 E
1.1.3	Bar scale/*Staafskaal*✓✓A **OR/*OF*** Graphic scale/line scale/*Grafiese skaal/lynskaal*	2A correct answer/*korrekte antwoord* (2)	M&P TL 1 E
1.1.4	Store museum/*winkel museum*✓✓RT	2RT reading from a map/*lees vanaf die kaart* (2)	M&P TL 1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.1.5	$\frac{76\,495}{1\,220\,813} \times 100\%$✓MA = 6,265906…%✓A = 6,3%✓R	1MA calculating/ *bereken* % 1A correct answer/ *korrekte antw* 1R correct rounding/ *korrekte afronding* (3)	M&P TL1 M
1.2.1	D✓✓A **OR** P = side + side + side/*sy* + *sy* + *sy*✓✓	2A correct formula/*korrekte formule* (2)	M TL 1 E
1.2.2	500 mm ÷ 1000✓C = 0,5 m✓A	1C convert to/*skakel om na* m 1A answer/*antwoord* (2)	M TL 1 E
1.2.3	25 cm × 2✓MA = 50 cm✓A	1MA multiply by/ *vermenigvuldig met* 2 1A answer/*antwoord* (2)	M TL 1 E
1.3.1	Mass = 1 200 g ÷ 3✓MA = 400 g✓A	1MA dividing/*deling* 1A answer/*antwoord* (2)	M TL 1 E
1.3.2	12,5 kg flour/*meel*✓✓RT **OR/*OF*** Mealie meal/*mieliemeel* **OR/*OF*** Macaroni	2RT answer/*antwoord* (Any one of the three option is correct/*enige een van die drie opsies korrek)* (2)	M TL 1 M
1.3.3	Mass/*gewig* = 9 000 g ÷ 4 ✓MA = 2 250 g ÷ 1 000 ✓ A = 2,25 kg ✓C **OR** 9 000 g ÷ 1 000✓C = 9 kg ÷ 4✓ = 2,25 kg✓	1MA dividing by/*deel deur* 4 1A answer/*antwoord* 1C conversion (3)	M TL1 M
1.4.1	E✓✓A	2A correct definition /*regte definisie* (2)	M&P TL 1 E

1.4.2	A✓✓A	2A Correct definition/*regte definisie* (2)	M TL 1 E
1.4.3	B✓✓	2A Correct definition/*regte definisie* (2)	P TL 1 E
		[30]	
QUESTION/*VRAAG* 2 [31 MARKS/*PUNTE*]			
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
2.1.1	No of seats = 17 + 30 + 27 + 24 + 23 + 20 + 19 + 16✓MA = 176 seats✓CA **OR** No of seats = 50 + 85 + 41✓ = 176✓	1MA adding all values/*tel al die getalle bymekaar* 1CA answer/*antwoord* **AO** (2)	M&P TL1 E
2.1.2	Wheelchair seats/*Rolstoelsitplekke* = 8✓A Non wheelchair seats/*gewone sitplekke* = 176 – 8 = 168✓CA 8 : 168✓MCA 1 : 21✓CA	**CA no of seats from/*aantal sitplekke van* 2.1.1** 1A number of wheelchair seats/ *aantal rolstoelsitplekke* 1CA number of non-wheelchair seats/ *gewone sitplekke* 1MCA correct order/ *regte volgorde* 1CA simplification/ *vereenvoudig* (4)	M&P TL 2 M
2.1.3	North East **OR** NE ✓✓A	2A correct compass direction/ *regte kompasrigting* (2)	M&P TL 2 E
2.1.4	✓✓ F14	1 A F 1A 14 (2)	M&P TL 2 E

2.1.5	Mrs Brook will get up from her seat and turn towards the west/left ✓A/*Mev Brooks sal opstaan en wes/links draai* She will walk till the passage, turn North/right/*sy sal afloop in die paadjie en dan Noord/regs draai*✓*A* and walk straight forward to the stage/ *loop reguit vorentoe tot by die verhoog*✓A **OR/*OF*** Walk towards the east/right, walk till passage then turn north towards the stage/*loop oos in die rigting van die gangetjies draai Noord en loop tot by die verhoog.*	1A turn left/east/*draai links/oos* 1A turn right/north/*draai regs/noord* 1A passageway to the stage/ *gangetjie tot by verhoog* (3)	M&P TL 2 E
2.1.6	62,5% × 176 = 110✓MA P = $\frac{1}{110}$ ✓✓A **OR** 0,0091✓✓ **OR** 0,91%✓✓	**CA number of seats from 2.1.1** 1MA calculating/ *bereken* % of/ *van* 176 1A numerator/*teller* 1CA Denominator/*noemer* **NPR** (3)	P TL2 M
2.2.1	Floor plan is the aerial /top/bird's eye view of a structure/ *vloerplan is die tekening van die uitleg van 'n gebou vanuit 'n voël-oog-uitsig/bo-aansig*✓✓A	2A correct definition/*regte definisie* (2)	M&P L1 E
2.2.2	13 doors/*deure*✓✓A (1 garage door/*motorhuisdeur*, 1 sliding door/ *skuifdeur* and/*en* 11 normal doors/*gewone deure*)	2A correct number of doors/*korrekte aantal deure* (2)	M&P TL 2 E
2.2.3	A ✓✓A **OR/*OF*** The porch is on the west elevation/*die stoep is op die westelike aansig.*	2A correct option/*korrekte opsie* (2)	M&P TL 1 E

2.2.4	Actual length/*werklike* = 40 mm × 200✓MA = 8 000 mm✓C = 800 cm✓C Actual width / *werklike* = 32 mm × 200 = 6 400 mm = 640 cm✓A Floor area/*vloeroppervlakte* = 800 cm × 640 cm✓SF = 512 000 cm^2✓CA Minimum area of the window/*minimum opp v venster* = 512 000 cm^2 × 12,5% = 64 000 cm^2✓CA Area of the window/*opp v venster* = height/*h* × width/*b* 64 000 cm^2 = 256 cm × width/*b* Width/*breedte* = 64 000 cm^2 ÷ 256 cm✓MCA = 250 cm✓CA	1MA using scale/*gebruik skaal* 1C conversion/*omskakeling* 1A length/*lengte* 1A width/*breedte* 1SF substitution/*vervang in formule* 1CA area of the room/*oppervlakte van kamer* 1CA area of the window/*oppervlakte van venster* 1MCA finding the width/*bereken die breedte* 1CA simplification/*vereenvoudig* (9)	M&P TL 3 D
		[31]	

QUESTION/*VRAAG* 3 [39 MARKS/*PUNTE*]

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
3.1.1	Perimeter/*omtrek* = (3,9 + 5,5 + 3 + 5,5 + 2,5) m✓MA = 20,4✓CA m✓A	1MA adding all correct values/ *korrekte waardes* 1CA simplification/ *vereenvoudig* 1A correct unit/ *korrekte eenheid* (3)	M TL 2 M

3.1.2	Radius = 91,44 cm ÷ 2✓M = 45,72 cm✓A **LSA = 2 × 3,142 × r × h** = 2 × 3,142 × 45,72 m × 30,48 m✓SF = 8 757,04055 cm^2✓CA	1MA dividing by/*deel deur* 2 1A simplification/*vereenvoudig* 1SF substitution into correct formula/*vervang in korrekte formule* 1CA simplification/*vereenvoudig* **NPR** (4)	M TL 2 M
3.1.3	Area of a circle /*Oppervlakte van sirkel* = 3,142 × $(45,72)^2$✓SF = 6 567,780413 cm^2✓CA = 6 567,780413 ÷ 10 000/100^2 = 0,6567780413 m^2✓C Area of a rectangle /*Oppervlakte van 'n reghoek* = 5,5 m × 3 m✓SF = 16,5 m^2✓A Area of a triangle /*Oppervlakte van 'n driehoek* = $\frac{1}{2}$ × 2,5 m × 3 m✓SF = 3,75 m^2✓A Shaded area/*geskakeerde oppervlakte* = 16,5 + 3,75 – 0,6567780413✓MCA = 19,59 …. m^2✓CA ≈ 20 m^2	**CA radius from/*van* 3.1.2** 1SF substitution/*vervang* 1CA simplification/*vereenvoudig* 1C conversion/*omskakeling* 1SF substitution/*vervang* 1A simplification/*vereenvoudig* 1SF substitution/*vervang* 1A simplification/*vereenvoudig* 1MCA adding and subtracting/*optel en aftrek* 1CA simplification/*vereenvoudig* (9)	M TL 3 D
3.2.1	Area of a brick = 0,215 m × 0,1025 m✓SF = 0,0220375 m^2✓A No of bricks = $\frac{20}{0,0220375}$✓MCA = 907,5439592✓CA = 908✓R	1SF substitution/*vervang* 1A simplification/*vereenvoudig* 1MCA dividing/*deling* 1CA simplification/ *vervang* 1R rounded answer/*afgeronde antwoord* (5)	M TL 3 D

3.2.2	Mass in tons = 3,276 kg × 908 ✓MCA = 2 974,608 kg✓S = 2 974,608 × 0,001✓C = 2,974608 ton✓CA **OR/*OF*** Mass = $\frac{2\,974{,}608}{1\,000}$ =2,974608 ton	**CA no of bricks from 3.2.1** 1MCA multiplying/ *vermenigvuldig* 1S simplification/*vereenvoudig* 1C conversion/*omskakel* 1CA answer/*antwoord* **NPR** (4)	M TL 2 M
3.3.1	1 × 60 = 2 × **A**✓MA **A** = 60 ÷ 2 = 30✓A **B** = $\frac{60}{15}$ = 4✓A	1MA multiplying/ *vermenigvuldig* 1A value of/*waarde vir* A 1A value of/*waarde vir* B **AO** (3)	M TL 1 E
3.3.2	Inverse proportion/*omgekeerde verhouding*✓✓A **OR/*OF*** Indirect proportion/*indirekte eweredigheid*✓✓	2A correct answer/ *korrekte antwoord* (2)	M TL 1 E
3.4.1	60 ÷ 0,3937✓MA = 152,4003048 cm✓C ÷ 100 = 1,52 m✓C **OR/*OF*** 60 ÷ 0,3937 ÷ 100 = 1,52 m	1MA dividing/*deling* 1C conversion to cm/*skakel om in cm* 1R rounding/*afronding* (3)	M TL2 M
3.4.2	Nick's BMI = $\frac{56\text{ kg}}{(1{,}65\text{ m})^2}$✓SF = 20,57 kg/m^2✓A Nicolene's BMI = $\frac{45\ kg}{(1{,}52\ m)^2}$ = 19,48 kg/m^2✓CA Difference = 20,57 – 19,48✓MCA = 1,09 kg/m^2✓CA Ruth's statement is NOT correct✓O	**CA height from 3.4.1** 1SF substitution/*vervang in formule* 1A simplification/*vereenvoudig* 1CA simplification/*vereenvoudig* 1MCA subtraction/*aftrekking* 1CA simplification/*vereenvoudig* 1O opinion/*opinie* (6)	M TL 4 M
		[39]	

QUESTION/VRAAG 4 [22 MARKS/*PUNTE*]			
4.1.1	Diameter /*deursnee* = 2,5 × 2,54 ✓MA= 6,35 cm✓C r = $\frac{6,35}{2}$ = 3,175 cm✓A **Volume of tin/can/*van blikkie*** $= \mathbf{3,142 \times r^2 \times h}$ = (3,142) × (3,175)^2✓SF × (12,065)✓SF = 382,138651 cm^3✓CA = 382 cm^3	1MA multiplying/ *vermenigvuldig* 1C converted answer/*omgeskakelde antwoord* 1A radius 1SF substitution radius^2/*vervanging radius*^{2} 1SF substitution into formula/*vervanging in formula* 1CA simplification/ *vereenvoudiging* (6)	M TL 2 M
4.1.2	95% of volume 382 cm^3 = 382 mℓ✓C = $\frac{95}{100}$ × 382 mℓ ✓M = 362,9 mℓ ✓CA = 363 mℓ ✓R	1C conversion/*omskakeling* 1MA multiplying/*vermenigvuldig* 1CA simplification 1R rounded answer. (4)	M TL 2 E
4.2	Length of the table/*tafel se lengte* = 1,75 m 50% of the length/*50% van lengte* = 1,75 m ÷ 2 =0,875 m✓A If the scale of 1 : 10 is used/*Skaal 1:10 word gebruik*✓M Length of model/*lengte van model* = 4,8 m ÷ 10 × 1 = 0,48✓CA 0,48 will fit on the actual table/*0,48 sal op die werklike tafel pas*✓O The scale of 1 : 10 will be suitable/*die skaal 1:10 sal geskik wees.*✓O	1A calculating 50% of table size/ *bereken 50% van die tafel se grootte* 1M using scale/*gebruik skaal* 1CA calculating model length/ *bereken die lengte van die model* 1O opinion/*opinie* 1O opinion/*opinie* (5)	M&P TL4 D
4.3.1	Bus 1: Leave/*Vertrek van* Horison View: 6:02 Arrive at/*arriveer in* Rosebank: 7:17 Travel time/*Reistyd* = 7:17 – 6:02✓RT✓MCA = 1:15 Take 1 hour 15 minutes/*Sal 1 uur 15 minute reis.*✓CA	1RT correct times/*korrekte tye* 1MCA subtract/*aftrekking* 1CA answer/*antwoord* (3) **AO**	M TL 2 E

4.3.2	Arrive at 7:17 then walks 15 minutes, start to work after 10 minutes of rest/*Arriveer 7:17, stap vir 15 minute en begin werk na 10 minute se rus.* 7:17 + 10 min + 15 min✓MA = 7:42 will work for 9hrs 45 min/*werk vir 9 uur 45 min* = 7:42 + 9:45✓MCA = 17:27✓A No will not knock off at 17:00/*Nee hy sal nie klaar wees teen 17:00 nie*✓O	1MA add times to get starting time/ *tel tyd om regte begin tyd te bereken* 1MCA add 9hr45min hours/*tel 9ur 45min ure by* 1CA correct end time/*regte eindtyd* 1O opinion/*opinie* (4)	M TL 4 M
		[22]	

QUESTION/*VRAAG* 5 [28 MARKS/*PUNTE*]

Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
5.1.1	SCALE /*SKAAL* 25 mm : 100 km Distance measured/*afstande gemeet* = 108 mm ✓C Actual distance/*werklike afstand* = 108 x $\frac{100}{25}$ km✓CA = 432 km✓CA **OR/*OF*** 2,5 cm : 100 km 10,8 cm : *x* km✓C 10,8 × $\frac{100}{2,5}$ km✓CA = 432 km ✓CA **OR/*OF*** 25 mm : 100 km 25 mm : 100 000 000 mm 1 : 4 000 000✓A Actual distance = 10,8 cm × 4 000 000✓MCA = 43 200 000 cm = 432 km✓CA	1C conversion/*omskakeling* 1CA multiply with 100 and divide with 25/*vermenigvuldig met 100 en deel met 25* 1CA answer/*antwoord* **OR/*OF*** 1C conversion/*omskakeling* 1CA multiply with 100 and divide with 2,5/*vermenigvuldig met 100 en deel met 2,5* 1CA antwoord/*answer* OR/*OF* 1A number scale/*nommerskaal* 1MCA multiplying/ *vermenigvuldiging* 1CA answer/*antwoord* (3)	M&P TL 3 M

5.1.2	$T = \frac{432\ km}{120\ km/h}$ ✓SF = 3,6 hours✓A = 3 hour 36 minutes✓CA 8 + 3 hours /*ure* 36 minutes/*minute*✓M = 11:36✓C Yes, she will arrive before 12:00/midday *Ja, sy arriveer voor 12:00* ✓O	**CA distance from/*afstand van* 5.1.1** 1SF substitute into formula/*vervang in formule* 1A answer/*antwoord* 1C hours and minutes/*ure en minute* 1MCA adding time /*tel tyd bymekaar* 1CA answer/*antwoord* 1O opinion/*opinie* (6)	M&P TL 4 M
5.2.1	90 % OR 0,9 of roses/*van die rose* = 12 + 15 90% of the total number of roses = 27 *90% van die totale aantal rose* = 27✓M Total roses/*totaal rose* = $\frac{27}{0,9}$✓MA = 30 roses/*rose*✓CA **OR/*OF*** 27 roses/*rose* : 90% *x* roses/*rose* : 100% $27 \times \frac{100}{90}$ roses = 30 roses/*rose*	1A Total of pink and red roses/ *aantal pienk en rooi rose* 1MA divide total by/*deel totaal deur* 90% 1CA answer/*antwoord* (3)	P TL 3 M
5.2.2	Different colors/*Verskillende kleure*: 30 – 27 = 3✓CA $P = \frac{3}{30}$ ✓CA = 0,1✓CA The statement is correct/*Haar stelling is reg*✓O	**CA no of roses with/*getal rose met* 5.2.1** 1CA different coloured roses/*verskillende kleur rose* 1CA fraction/*breuk* 1CA simplification/*vereenvoudig* 1O opinion/*opinie* (4)	P TL 4 E
5.3.1	$°F - 32° = \frac{9}{5} \times °C$ $275° - 32° = \frac{9}{5} \times °C$✓SF 243°✓A $\times \frac{5}{9} = °C$✓MCA 135 °C✓CA	1SF substitution/*vervanging* 1A answer/*antwoord* 1MCA changing the subject/*verander onderwerp* 1CA simplification/*vereenvoudig* (4)	M TL 2 M

5.3.2 (a)	Length of the box/*lengte van kartonhouer* = 6 × (7,5 cm + 0,8 cm)✓MA = 6 × 8,3 cm = 49,8 cm✓CA Width of the box = 3 × (7,5 cm + 0,8 cm) = 3 × 8,3 = 24,9 cm✓CA Height of the box = 2 × (8 cm)✓A+ 0,8) = 2 × 8,8 = 17,6 cm✓CA The dimensions of the box are: 49,8 cm ×24,9 cm× 17,6 cm	1MA multiplying number of jars by diameter and space/*vermenigvldig aantal bottels met deursnee en spasie* 1CA length/*lengte* 1CA width/*breedte* 1A identifying the height of the bottle/*identifiseer hoogte van die bottel* 1CA height/*hoogte* (5)	M&P TL 3 D
5.3.2 (b)	Volume of the box/*van karton houer* = 49,8 cm × 24,9 cm × 17,6 cm✓SF = 21 824,352 cm^3✓CA = 0,021824352 m^3✓C **OR/*OF*** Volume of the box/*volume van karton houer* = 0,498 m × 0,249 m × 0,176 m = 0,021824352 m^3	**CA dimensions from/*afmetings van* 5.3.2(a)** 1SF substitution/*vervanging* 1CA simplification/*vereenvoudig* 1C conversion/*omskakeling* **OR/*OF*** 1C conversion/*omskakeling* 1SF substitution/*vervanging* 1CA simplification/ *vereenvoudiging* **NPR** (3)	M TL2 M
		[28]	
		TOTAL/*TOTAAL*: 150	

MATHEMATICAL LITERACY

2024 PREPARATORY EXAMINATION

PAPER 2 ADDENDUM

QUESTION 1		
1.3.2	Accept names of quantities for full marks Snowflake OR White star OR Fattis 'n Monis	
1.3.3	If divided by 3, (award CA for answer and a mark for conversion) 9 000 g ÷ 3 = 3 000 g✓^{C} ÷ 1 000 = 3 kg✓^{CA}	
QUESTION 2		
2.1.6	62,5% of 176 = 110✓ Probability = $\frac{110}{110}$ ✓✓= 1 OR 100% **Accept the answer in the MG for full marks**	
2.2.2	Accept 12 doors 2/2	
2.2.4	Accept the answer in m or mm	
QUESTION 3		
3.1.2	**Correction of unit in the step below** LSA = 2 × 3,142 × 45,72 **cm** × 30,48 **cm** = 8 757,04055 cm^2	
3.1.3	**Question marked as follows:** **Area of circle: 3 marks** **Area of rectangle: 2 marks** **Area of triangle: 2 marks** **Shaded area: 2 marks**	
3.2.1	CA area from Q3.1.3	
QUESTION 4		
4.1.2	CA from Q4.1.1	
4.2	**Alternatives** 50% of the length of the table = 1,75 m ÷ 2 = 0,875 m✓ The actual length of the kitchen = 4,8 m Then 0,875 m : 4,8 m✓ 1 : 5,48✓ ∴ It will fit ✓✓ **OR** Area of the table = 1,75 m × 1 m = 1,75 m^2 50% of the area = 0,875 m^2✓ Area of the scaled model if 1 : 10 is used Length = 4,8 m ÷ 10✓ = 0,48 m Width = 4,2 m ÷ 10 = 0,42 m ✓ Area = 0,48 m × 0,42 m = 0,2016 m^2✓ Model will fit on half of the table✓	

QUESTION		
5.1.2	**Alternatives** 12:00 – 08:00✓ = 4 hrs✓ Speed = distance ÷ time✓ = 432 km ÷ 4 hrs✓ = 108 km/h✓ More speed required to arrive after 12 midday Yes, she will arrive before midday✓ **OR** 12:00 – 08:00✓ = 4 hrs✓ Distance = speed × time✓ = 120 km/h × 4 hrs✓ = 480 km✓ More distance required to arrive after 12 midday Yes, she will arrive before midday✓	