education

Department of Education
FREE STATE PROVINCE

PREPARATORY EXAMINATION

GRADE 12

MATHEMATICAL LITERACY P1

SEPTEMBER 2025

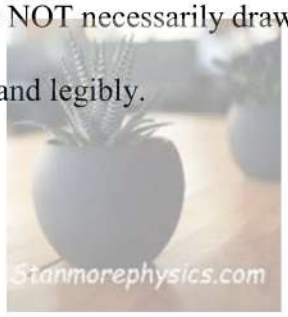
MARKS: 150

TIME: 3 HOURS

This question paper consists of 10 pages and a 22-page SPECIAL ANSWER BOOK.

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions.
2. Answer ALL the questions in the SPECIAL ANSWER BOOK provided.
3. Write your SURNAME and NAME on the space provided. ONE letter per block.
4. You may use an approved calculator (non-programmable and non-graphical) unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Diagrams are NOT necessarily drawn to scale unless stated otherwise.
9. Write neatly and legibly.



QUESTION 1

1.1 TABLE 1 below contains a list of explanations, abbreviations and definitions of concepts frequently used in Mathematical Literacy.

TABLE 1: EXPLANATIONS AND DEFINITIONS OF CONCEPTS OR ABBREVIATIONS

A	The difference between the largest and smallest value in the data set.
B	A situation in finance where expenses exceed the money coming into a business.
C	Explains how wide the values are that reside in the middle (i.e. from 25% to 75%) of scores in a data set, excluding the top and bottom quarter.
D	The point at which the profit from the transactions is zero and the total sales are equal to the total costs is called the equilibrium point.
E	Where an event is impossible to happen, its chance is 100%.
F	The chance of an event happening.
G	The costs that do not change with the quantity produced and remain constant.
H	The cost (in rands) per measuring unit for a specific service.

Use TABLE 1 above to write down the letter of the explanation or definition (A to H) of EACH of the following concepts, for example: 1.1.6 **C**.

1.1.1 Probability (2)

1.1.2 Breakeven point (2)

1.1.3 Inter Quartile Range (IQR) (2)

1.1.4 Deficit (2)

1.1.5 Tariff (2)

1.2 The graphs below analyse the results of TWO tests, Test 1 and Test 2, written by a group of learners in a class.

Note: Each test is out of a total of 50 marks.

Use the information above to answer the questions that follow.

1.2.1 State whether the graph representing the test results above is a **line graph** or a **box and whisker plot**. (2)

1.2.2 Write down the maximum marks obtained in Test 1. (2)

1.2.3 Calculate the difference between the minimum marks for Test 1 and Test 2. (2)

1.2.4 Show that the quartile 1 mark for Test 1 equals 67% of the total test mark. (2)

1.3 An expert presented several workshops around Mangaung and one at the Bon Hotel. He received an invoice from BON Hotel in Bloemfontein for his seven-night accommodation and ONE-day conference at the hotel.

INVOICE

BON HOTEL BLOEMFONTEIN CENTRAL

DESCRIPTION	UNIT PRICE	TOTAL
Rental of a room and breakfast for 7 nights, arriving after 14:00	R4 950,00 per night	**A**
Hire a conference hall and facilities	R750,00	R750,00
Conference set-up and refreshments	R1 045,00	R1 045,00
	Sub-total	R36 445,00
	VAT @ 15%	…
	TOTAL DUE:	…

[Adapted from www:eu-central1.amazonses.com]

Use the information above to answer the questions that follow.

1.3.1 What does the acronym VAT stand for? (2)

1.3.2 Determine the value of **A** in the invoice. (2)

1.3.3 Write down the VAT rate in the invoice above. (2)

1.3.4 Calculate the VAT amount due on this invoice. (3)

1.3.5 Write as a simplified ratio the price of conference set-up and refreshments to the sub-total. (3)

[30]

QUESTION 2

2.1 TABLE 2 on ANNEXURE A in the ANSWER BOOK shows the price of grocery items from SEVEN different grocery stores during March 2024.

Use ANEXURE A to answer the questions that follow.

2.1.1 Calculate the value of **B**. (2)

2.1.2 Determine the price of rice at the Spar. (3)

2.1.3 Identify the third-cheapest grocery store in March 2024. (2)

2.1.4 Give ONE possible reason why the price of the same item differs from one grocery store to another. (2)

2.1.5 Determine the probability (as a decimal) of randomly selecting non-food items from the grocery items. (2)

2.1.6 Write down the food item(s) that cost the same amount in four different grocery stores. (2)

2.1.7 Provide ONE possible reason why some customers prefer to purchase groceries at an expensive grocery store. (2)

2.2 A 55-year-old female deputy principal earns a monthly taxable income of R46 294,08; on her birthday month, she receives an extra income equal to her one-month taxable income.

TABLE 3 below, as issued by the South African Revenue Service (SARS), could be used to determine the tax amount payable by her.

TABLE 3: 2023/2024 TAX YEAR RATES (1 March 2023 to 29 February 2024)

BRACKET	TAXABLE INCOME (in Rands)	RATES OF TAX (in Rands)
1	R0–R237 100	18% of each R1 earned
2	R237 101–R370 500	R 42 678 + 26% of the amount above R237 100
3	R370 501–R512 800	R 77 362 + 31% of the amount above R370 500
4	R512 801–R673 000	R121 475 + 36% of the amount above R512 800

TAX REBATES 2023/2024

Primary (below 65)	R17 235
Secondary (65 and older)	R9 444
Tertiary (75 and older)	R3 145

NOTE:

- During the tax year, her salary was constant.
- SARS implement a pay-as-you-earn (PAYE) tax system.

Use the information above to answer the questions that follow.

2.2.1 Determine the following:

(a) The deputy principal's total annual taxable income. (2)

(b) The tax bracket that will be used to calculate her income tax. (2)

2.2.2 The deputy principal claims the monthly tax deduction of R11 357,36 on her salary is CORRECT.

Verify, showing all calculations, whether her claim is VALID. (7)

2.2.3 Give ONE advice to the deputy principal on how she can lower the amount of tax she has to pay. (2)

2.2.4 Provide ONE possible reason why the amount of tax a taxpayer has to pay is according to the level of their income (that is, pay as you earn). (2)

[30]

QUESTION 3

3.1 ANNEXURE B in the ANSWER BOOK shows the percentage of teenagers aged 14 to 19 years who were pregnant in South Africa (RSA) from 2018 to 2022.

Use ANNEXURE B and the information above to answer the questions that follow.

3.1.1 State the estimated number of South Africa's female population for 2022 in words. (2)

3.1.2 Identify the type of graph used to represent the information. (2)

3.1.3 Write down TWO consecutive years where the combined annual teenage pregnancy rate was below 4% for the period as mentioned above. (2)

3.1.4 Determine the number of teenagers who were pregnant in 2022. (2)

3.1.5 Give ONE possible reason why:

(a) The birth registrations are more than 100% of the actual births that occurred in 2020. (2)

(b) The graph for teenagers aged 14 years in 2021 is not shown. (2)

3.1.6 Determine the actual number of births from non-teenage mothers in 2020. (4)

3.2 A teenage mother has a 33-month-old boy, weighing 15kg.

ANNEXURE C in the ANSWER BOOK shows a weight-for-age percentile graph for boys from birth to 36 months. The data for Child B is already plotted.

Use information from ANNEXURE C to answer the questions that follow.

3.2.1 Identify the type of graph used on ANNEXURE C. (2)

3.2.2 State the percentile curve on which the 33-month-old boy above will be located. (2)

3.2.3 A nurse explained the dot on the graph for child B to the mother, '*The dot on the 25th percentile curve reflects your son's weight position out of 100% of the boys his age.*'

What does the nurse's statement mean? (3)

3.2.4 In which quartile will Child B belong? (2)

3.2.5 Mention ONE function of this type of graph. (2)

3.2.6 Determine how far apart the percentile curve of another boy of the same age and weighing 32 lb from Child B will be. (3)

[30]

QUESTION 4

4.1 The measured weight in kilograms of learners in the three classes (Grade 4.1 to 4.3) at St Dominic's College are given below.

Grade 4.1

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
44	56,6	48,8	50	51	52	53,7	54	56	56,1

Grade 4.2

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
40	41	42	42,5	46	46	**C**	**C**	53	53

Grade 4.3

L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
62	60	57	56	55	54	53	**D**	48	47

Note:

- **L** = Learner
- The weights of Grade 4.3 learners are already arranged.

Use the information above to answer the questions that follow.

4.1.1 State whether the weight of the learners is regarded as discrete or continuous data. (2)

4.1.2 Write down the modal weight of Grade 4.1 learners. (2)

4.1.3 Determine:

(a) The median weight of learners in Grade 4.1. (3)

(b) The value of **C**, if the mean weight of Grade 4.2 is 44,35. (3)

4.1.4 Determine the lower quartile for Grade 4.3 if the Interquartile Range (IQR) for this class is 6,9.

You may use the formula:

IQR = Upper quartile – Lower quartile (3)

4.2 St. Dominic's College rents out photocopying machines and offers three contract options. The ANSWER SHEET on page 16 in the ANSWER BOOK displays the graphs for these three contract options.

Use the information on the ANSWER SHEET to answer the questions that follow.

4.2.1 Write down the number of copies at the point where contracts **1** and **3** cost the same. (2)

4.2.2 Point **B** to **C** represents a fixed cost. Explain the term **fixed cost** in this context. (2)

4.2.3 St Dominic's College makes 3 500 copies per month.

Identify the contract which will be the cheapest option for the college. (2)

4.2.4 Use the graph on the ANSWER SHEET to determine a formula that can be used to calculate the total cost (in rand) for contract **2** in the form:

Total Cost = … (5)

4.2.5 SEBENZA Company charges a rate of R0,70 per copy for renting their photocopying machine without any other costs.

On the ANSWER SHEET, draw a line graph to show the costs charged by the SEBENZA Company. (3)

4.3 St Dominic's College invested R1 250 000 at a bank where it will earn an interest rate of 6%, compounded annually, for 2 ¼ years.

Determine through calculations whether this money will generate an interest of more than R180 000 by the end of the investment term. (9)

[36]

QUESTION 5

5.1 The ranking of the eleven top soccer players according to the money they earn in the DSTV soccer league and World soccer players for the 2023/24 season is shown on ANNEXURE D in the ANSWER BOOK.

Use ANNEXURE D and the information above to answer the questions that follow.

5.1.1 State whether the monthly salary of DSTV league soccer players is arranged in ascending or descending order. (2)

5.1.2 One soccer follower claimed that the total salary in dollars for each of the World's TOP five (5) highest-paid soccer players is a nine-digit figure. Explain. (2)

5.1.3 Write down the total monthly salary of DSTV soccer players to Christiano Ronaldo's annual salary (in rands) in the form **1: …** (6)

5.1.4 Determine the probability (as a percentage) of randomly selecting a player from ANNEXURE D who earns more than a million rands. (3)

5.2 In 2022, a LOCAL municipality released its approved budget for the 2022/2023 financial year. ANNEXURE E in the ANSWER BOOK is an extract from the consolidated budget. Some of the amounts have been omitted.

Note: ALL amounts reflected are in thousands (R '000) of rands.

Use the information above and ANNEXURE E to answer the questions that follow.

5.2.1 Determine the missing value **G**. (3)

5.2.2 Calculate the missing value **H** and state whether it is a surplus or a deficit.

You may use the formula:

H = Total income – Total expenditure (5)

5.2.3 Show that the percentage increase in employee costs is 8.3% from 2021/2022 to 2022/2023

You may use the following formula:

$$\textbf{Percentage increase} = \frac{\textbf{Difference in employee costs}}{\textbf{Original budgeted employee costs}} \times \textbf{100\%}$$

(3)

[24]

TOTAL: 150

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GRADE 12 – ANSWER BOOK 2025 *Confidential*

Preparatory Examination
Answer Book

SURNAME									

NAME (S)													

Sequence No. on mark sheet

BOOK NUMBER		OF		BOOKS

SUBJECT CODE	M	L	I	T	Z

PAPER NUMBER	1

SUBJECT NAME	MATHEMATICAL LITERACY

MARKER						MODERATOR'S INITIALS IN RELEVANT BLOCK											
Question	Marks			Marker's Code & Initials	Marks	DH	Marks	Cluster	Marks		SES	Marks		SBA	Marks		SBA
1																	
2																	
3																	
4																	
5																	
TOTAL																	

READ INSTRUCTIONS ON THE NEXT PAGE.

Teacher signature: …… Date: ……

This answer book consists of 22 pages.

FOLLOW THESE INSTRUCTIONS CAREFULLY.

1. Clearly write your SURNAME and NAME(s) in the space provided. ONE letter per block.
2. Answer ALL the questions in the spaces provided.
3. No pages may be torn from this answer book.
4. Read the instructions which may be given in each examination paper.
5. Candidates may not retain an answer book or remove it from the examination room.
6. Answers MUST be written in black/blue ink as distinctly as possible. Pencils may be used for drawing graphs.
7. Do not write in the margins.
8. If you require additional space for your answers:
   - 8.1 Use the additional space provided at the end of the answer book.
   - 8.2 When answering a question in additional space, indicate clearly the question number in the column on the left-hand side.
9. Draw a neat line through any work that must not be marked.

QUESTION 1

	Solution	Marks
1.1.1		(2)
1.1.2		(2)
1.1.3		(2)
1.1.4		(2)
1.1.5		(2)
1.2.1		(2)
1.2.2		(2)
1.2.3		(2)
1.2.4		(2)

	Solution	Marks
1.3.1		(2)
1.3.2		(2)
1.3.3		(2)
1.3.4		(3)
1.3.5		(3)
		[30]

QUESTION 2

2.1 ANNEXURE A

PRICES OF NINE GROCERY ITEMS OF THE SAME BRAND FROM SEVEN GROCERIES STORES, MARCH 2024.

	NAMES OF GROCERY STORES						
ITEM	**Checkers**	**Pick n Pay**	**Woolworths**	**Spar**	**Shoprite**	**Makro**	**Food Lover's**
White Bread	R19,99	R18,99	R19,99	R17,99	R18,99	R19,99	R15,99
Sunflower Oil	R79,99	R74,99	R79,99	R69,99	R79,99	R61,95	R59,99
Maize Meal	R38,99	R38,99	R38,99	R34,99	R38,99	R29,95	R36,99
White Sugar	R69,99	R71,99	R61,99	R59,99	R69,99	R54,95	R62,99
Milk	R34,99	R34,99	R38,99	R32,99	R33,99	R29,95	R29,99
Rice	R46,99	R43,99	R43,99	…	R46,99	R41,95	R43,99
Flour	R42,99	R42,99	R41,99	R39,99	R42,99	R34,95	R41,99
Soap	R18,99	R17,99	R18,99	R17,99	R18,99	R15,95	R18,95
Toilet paper	R79,99	R74,99	R96,99	R79,99	R79,99	R71,00	R79,95
TOTAL	**R432,91**	**R419,91**	**B**	**R396,91**	**R430,91**	**R360,64**	**R390,83**

[Source: https://businesstech.co.za]

NOTE: Grocery items include food items and non-food items.

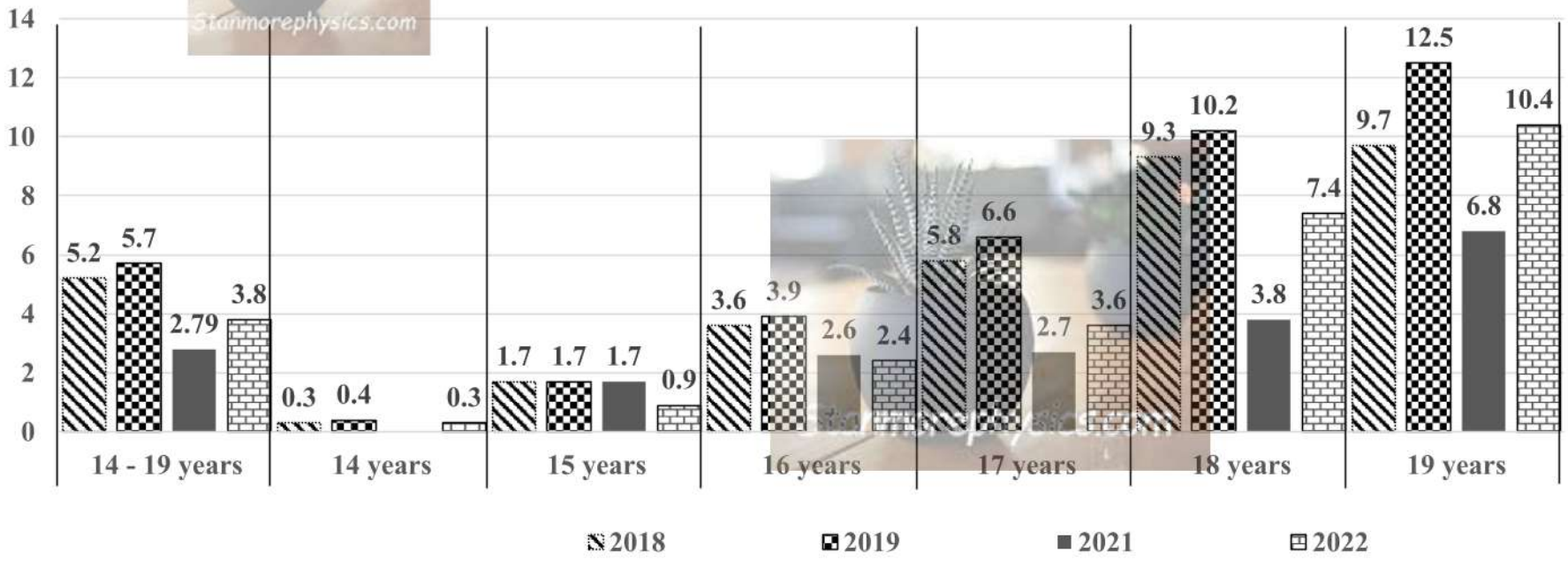
QUESTION 2

	Solution	Marks
2.1.1		(2)
2.1.2		(3)
2.1.3		(2)
2.1.4		(2)
2.1.5		(2)
2.1.6		(2)
2.1.7		(2)

	Solution	Marks
2.2.1 (a)		(2)
2.2.1 (b)		(2)
2.2.2		(7)
2.2.3		(2)
2.2.4		(2)
		[30]

QUESTION 3

3.1 ANNEXURE B



[Adapted from: www.statista.com.]

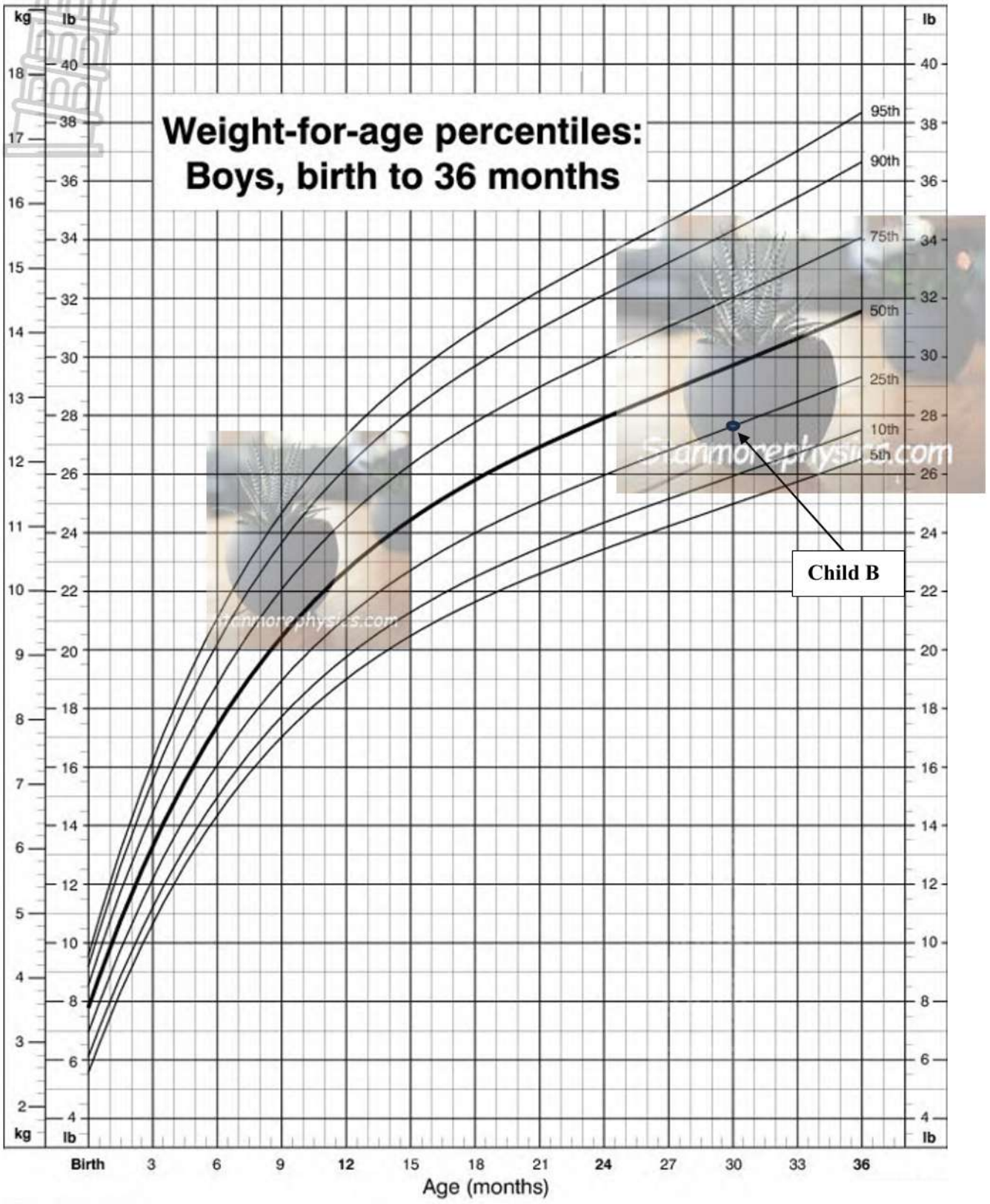
NOTE:

- Registrations of all births given by teenage mothers were done on the same day in 2020, and 15 had twins.
- In 2020, RSA recorded almost 35 000 (i.e. 0,11%)) teenage mothers, and 1 003 307 births were recorded that year.
- 10,366% of 2020 birth registrations were from 2019.
- In 2020 and 2022 RSA population estimates for females were 30 493 475 and 30 754 931, respectively, with a third being teenagers.

	Solution	Marks
3.1.1		(2)
3.1.2		(2)
3.1.3		(2)
3.1.4		(2)
3.1.5 (a)		(2)
3.1.5 (b)		(2)
3.1.6		(4)

3.2 ANNEXURE C

GRAPH: WEIGHT FOR AGE PERCENTILE GRAPH FOR BOYS, BIRTH TO 36 MONTHS



[Source: cdc.gov]

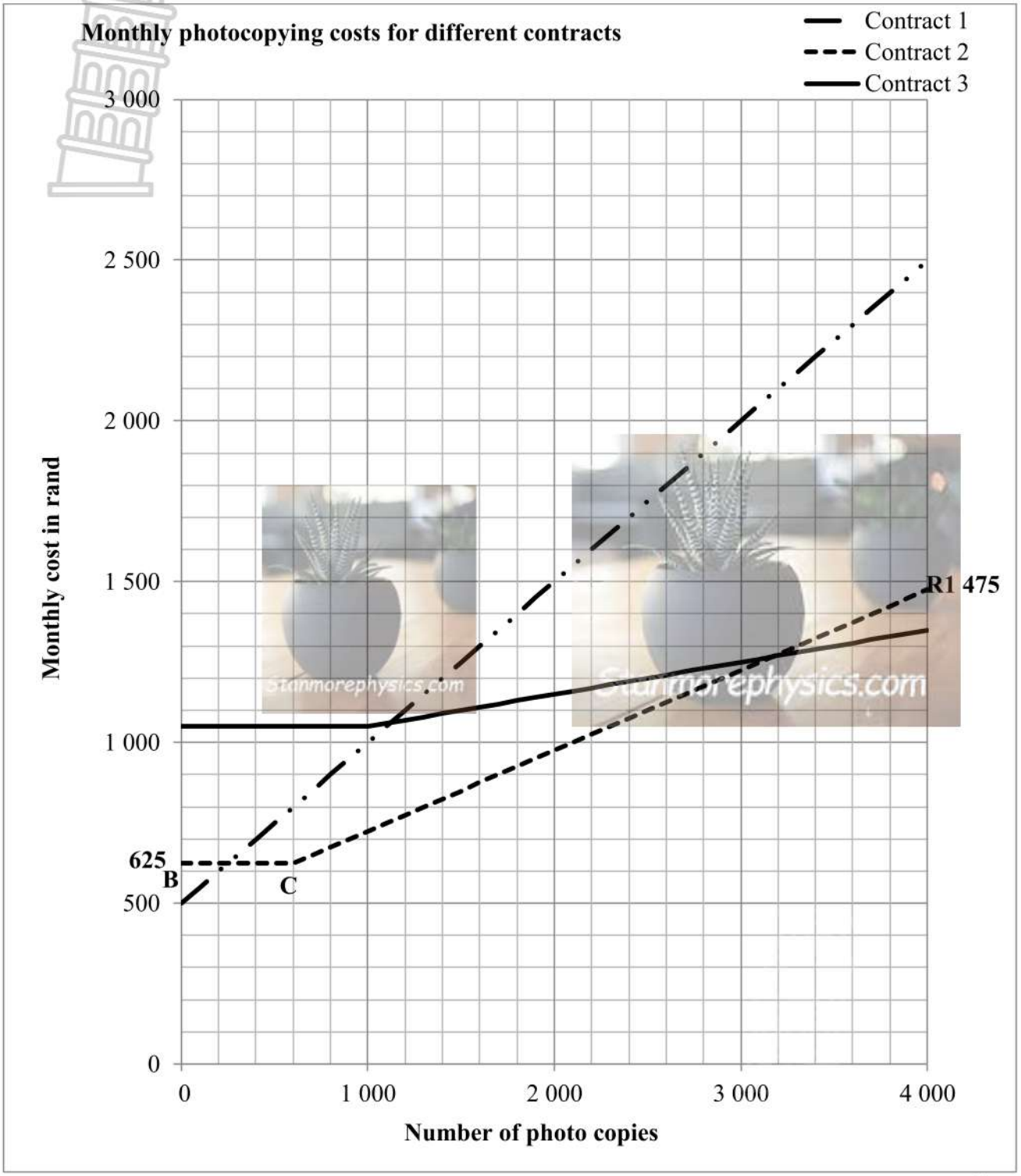
	Solution	Marks
3.2.1		(2)
3.2.2		(2)
3.2.3		(3)
3.2.4		(2)
3.2.5		(2)
3.2.6		(3)
		[30]

QUESTION 4

	Solution	Marks
4.1.1		(2)
4.1.2		(2)
4.1.3 (a)		(3)
4.1.3 (b)		(3)
4.1.4		(3)

	Solution	Marks
4.2.1		(2)
4.2.2		(2)
4.2.3		(2)
4.2.4		(5)

4.2.5



(3)

	Solution	Marks
4.3		(9)
		[36]

QUESTION 5

5.1 ANNEXURE D

ELEVEN TOP EARNING PLAYERS IN THE DSTV LEAGUE AND WORLD SOCCER PLAYERS

DSTV LEAGUE TOP EARNING PLAYERS

RANK	MONTHLY SALARY in Rands (R) BEFORE TAXES		
	PLAYER	TEAM playing	SALARY (Rand)
1	Keagan Dolly	Kaizer Chiefs	1,45 million
2	Samir Nurkovic	TS Galaxy	0,93 million
3	Bongani Zungu	Mamelodi Sundowns	0,70 million
4	Andile Jali	Moroka Swallows	0,60 million
5	Deon Hotto	Orlando Pirates	0,50 million
6	Rowen Williams	Mamelodi Sundowns	0,50 million
7	Itumeleng Khune	Kaizer Chiefs	0,48 million
8	Denis Onyango	Mamelodi Sundowns	0,45 million
9	Marcelo Allende	Mamelodi Sundowns	0,43 million
10	Kennedy Mweene	Mamelodi Sundowns	0,42 million
11	Kermit Erasmus	Mamelodi Sundowns	0,40 million
	Total		**6,86 million**

[Source: https://sportplus]

THE WORLD'S HIGHEST PAID SOCCER PLAYERS

RANK	ANNUAL SALARY (ON-FIELD AND OFF-FIELD) BEFORE TAXES			
	PLAYER	TEAM playing	ON-FIELD Salary in $	OFF-FIELD Salary in $
1	Christiano Ronaldo	Al Nassr	200 million	60 million
2	Lionel Messi	Inter Milan	65 million	70 million
3	Neymar Junior (Jr)	Al Hilal	80 million	32 million
4	Kylian Mbappe	Paris Saint-German	90 million	20 million
5	Karim Benzema	Al Ittihad	100 million	6 million
6	Erling Haaland	Manchester City	46 million	12 million
7	Mohamed Salah	Liverpool	35 million	18 million
8	Sadio Mané	Al Nassr	48 million	4 million
9	Kevin de Bruyne	Manchester City	35 million	4 million
10	Harry Kane	Bayern Munich	26 million	10 million
11	Robert Lewandowski	FC Barcelona	24 million	10 million
	Total		**995 million**	

[Source: www.forbes.com]

NOTE:

- **$ 1** = £ 0,75899553
- **R1** = $ 0,05644617

OFF-FIELD salary = earnings received for activities other than playing match.

ON-FIELD salary = earnings received for playing official matches or competitions.

QUESTION 5.1

	Solution	Marks
5.1.1		(2)
5.1.2		(2)
5.1.3		(6)
5.1.4		(3)

QUESTION 5.2

ANNEXURE E

TABLE 4: EXTRACT FROM A CONSOLIDATED LOCAL MUNICIPALITY BUDGET. ALL AMOUNTS IN ('000)

DESCRIPTION	2019/2020	2020/2021	Current year 2021/2022		2022/2023 Medium-term Income and Expenditure Framework Plan	
	Audited	Audited	Original Budget	Pre-Audit Outcome	Budget Year 2022/2023	Budget Year 2023/2024
INCOME						
Property rates	**G**	716 603	784 462	794 866	842 558	893 111
Service charges	2 073 501	2 227 636	2 694 542	2 694 542	2 878 830	3 116 589
Investment income	43 343	251 027	34 044	34 044	49 330	52 243
Transfer cost	448 122	519 604	440 652	518 241	489 491	530 153
Other income	293 743	312 290	211 525	211 526	212 797	221 307
Total income	**3 484 336**	**…**	**4 165 225**	**4 253 219**	**4 473 006**	**4 813 403**
EXPENDITURE						
Employee costs	824 585	889 355	961 335	961 335	1 040 938	1 101 367
Remuneration of councillors	37 100	134 657	42 350	42 350	43 033	45 615
Depreciation and asset impairment	453 359	81 980	487 299	487 299	507 298	569 317
Finance charges	67 196	71 180	69 501	69 501	65 474	58 263
Material and bulk purchases	1 592 462	1 780 120	1 967 839	1 982 214	2 118 107	2 311 745
Transfers and grants	218	240	128 362	128 362	140 526	153 542
Other expenditure	636 659	875 072	507 212	567 289	538 193	520 498
Total expenditure	**3 611 579**	**3 832 604**	**4 163 898**	**4 238 350**	**4 453 569**	**4 760 347**
Surplus (Deficit)	**(127 243)**	**H**	**1 327**	**14 870**	**19 436**	**53 055**

[Adapted from a municipal budget for 2022/2023]

	Solution	Marks
5.2.1		(3)
5.2.2		(5)
5.2.3		(3)
		[24]

	Solution	Marks

TOTAL: 150

RE-MARK/RE-CHECK				
Question	**Marks**			**Initials**
1				
2				
3				
4				
5				
TOTAL				
HASH TOTAL				

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PREPARATORY EXAMINATION/ *VOORBEREIDENDE EKSAMEN*

GRADE/*GRAAD* 12

SEPTEMBER 2025

MATHEMATICAL LITERACY P1/ *WISKUNDIGE GELETTERDHEID V1*

MARKING GUIDELINE/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

Symbol/*Kode*	Explanation/*Verduideliking*
M	Method/*Metode*
MA	Method with accuracy/*Metode met akkuraatheid*
CA	Consistent accuracy/*Volgehoue akkuraatheid*
A	Accuracy/*Akkuraatheid*
C	Conversion/*Herleiding*
S	Simplification/*Vereenvoudiging*
RT	Reading from a table/graph/document/diagram/*Lees vanaf tabel/grafiek/dokument/diagram*
SF	Correct substitution in a formula/*Korrekte vervanging in 'n formule*
O	Opinion/Explanation/*Opinie/Verduideliking*
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 rounding/*Geen penalisasie vir afronding nie*
AO	Answer only/*Slegs antwoord*
MCA	Method with consistent accuracy/*Metode met volgehoue akkuraatheid*
RCA	Rounding consistent with accuracy/*Afronding met volgehoue akkuraatheid*

This marking guideline consists of 19 pages./
Hierdie nasienriglyne bestaan uit 19 bladsye.

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- If a candidate has crossed out (cancelled) an attempt at 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 or map, then penalise 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.

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 het 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, die kandidaat slegs EEN punt verloor.*

QUESTION/*VRAAG* 1 [30 MARKS/*PUNTE*]		**Answer Only (AO) applicable.**	
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T/L**
1.1.1	✓✓ A F **OR** ✓✓ A The chance of an event happening/*Die moontlikheid dat 'n gebeurtenis kan plaasvind.*	2A correct answer (2)	P L1 E
1.1.2	✓✓ A D **OR** ✓✓ A The point at which the profit from the transactions is zero and the total sales are equal to the total costs is called the equilibrium point/ *Die punt waar die transaksiewins nul is en die totale verkope gelyk is aan totale koste, word die ewewigspunt genoem.*	2A correct answer (2)	D L1 E
1.1.3	✓✓ A C **OR** ✓✓ A Explains how wide the values are that reside in the middle (i.e. from 25% to 75%) of scores in a data set, excluding the top and bottom quarter/ *Verduidelik hoe wyd die waardes strek wat in die middel van 'n datastel lê (d.w.s. van 25% tot 75%), met uitsluiting van die boonste en onderste kwartiel.*	2A correct answer (2)	D L1 E
1.1.4	✓✓ A B **OR** ✓✓ A A situation in finance where expenses exceed the money coming into a business/*'n Situasie in finansies waar uitgawes die inkomste van 'n besigheid oorskry.*	2A correct answer (2)	F L1 E
1.1.5	H ✓✓ A **OR** ✓✓ A The cost (in rands) per measuring unit for a specific service/ *Die koste (in rand) per meeteenheid vir 'n spesifieke diens.*	2A correct answer (2)	F L1 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T/L
1.2.1	✓✓A Box and whisker plots/*Mond-en-snordiagram*	2A correct graph (2)	D L1 E
1.2.2	✓✓RT 36	2RT maximum marks (2)	D L1 E
1.2.3	✓MA ✓A 31 – 30 = 1	1MA subtracting correct values 1A simplification (2)	D L1 E
1.2.4	✓RT % mark/*punt* = $\frac{33,5}{50} \times 100\%$ ✓MA = 67% **OR/ *OF*** ✓MA ✓RT % mark/*punt* = 2 × 33,5 = 67% **OR/*OF*** % mark/*punt* = $\frac{67}{100} \times 50$ ✓RT = 33,5 ✓A	1RT value of Q1 (33,5) 1MA dividing by 50 and multiplied by 100% 1RT value of Q1 (33,5) 1MA multiplied by 2 1RT total marks (50) 1A value of Q1 (33,5) (2)	D L1 M
		[30]	

Q/V	Solution/Oplossing	Explanation/Verduideliking	T/L
1.3.1	✓✓A Value added tax/*Belasting op toegevoegde waarde*.	2A correct concept (2)	F L1 E
1.3.2	✓MA **A** = 7 × R4 950 = R 34 650,00. ✓A **OR/*OF*** ✓MA **A** = R36 445 – (R750 + R1 045) = R34 650,00 ✓A	1MA multiply correct values 1A value of **A** 1MA subtracting correct values from the sub-total 1A value of **A** **NPU** (2)	F L1 E
1.3.3	✓✓A 15%/Fifteen percent/ *Vyftien persent*	2RT correct percentage (2)	F L1 E
1.3.4	VAT due/ *BTW verskuldig* ✓RT = R36 445 × $\frac{15}{100}$ ✓MA = R5 466,75 ✓A	1RT correct value 1MA multiplying by 15% 1A simplification (3)	F L1 E
1.3.5	✓RT ✓MA 1 045 : 36 445 ✓A 209 : 7 289/ 1 : 34,88/ 0,029 : 1 **Accept** 1 : 35 1: 34,9 0,03 : 1	1RT correct values 1MA correct order 1A simplification (3)	F L1 M
			[30]

QUESTION/*VRAAG* 2		**[30 marks/*PUNTE*]**	
Ques	**Solution**	**Explanation**	**TL**
2.1.1	✓ MA **B** = R19,99 + R79,99 + R38,99 + R61,99 + R38,99 + R43,99 + R41,99 + R18,99 + R96,99 = R441,91 ✓ A	1MA adding all correct values 1A value of **B** **AO** (2)	F L1 M
2.1.2	Price of rice/Prys van r*ys* ✓MA = 396,91 – (17,99 + 69,99 + 34,99 + 59,99 + 32,99 + 39,99 + 17,99 + 79,99) = R396,91 – R353,92 ✓MA = R42,99 ✓ CA	1MA adding all correct values 1MA subtracting from the total 1CA price of rice **AO** (3)	F L2 E
2.1.3	Spar ✓✓RT	**CA from 2.1.1** 2RT correct store. (2)	F L2 M
2.1.4	• Distance between the store and the supplier. To cover transportation costs/*afstand tuseen die winkel die verskaffer.* ✓✓ O • Location of the store/Ligging van die winkel. ✓✓ O • Store reputation or standard is good. Branding/*Winkelreputasie of standaard.* ✓✓ O • Franchised (range of prices accepted) retailer. Example: Spar is franchised./*Eksklusiewe (reeks pryse aanvaar) kleinhandelaar. Voorbeeld: Spar is eksklusiewe kleinhandelaar.* ✓✓ O • Quality of the goods (freshness/expiry date)/*kwaliteit van goedere (varsheid/vervaldatum)*	2O reason (2)	F L4 D
2.1.5	Probability(non-food)/*Waarskynlikheid* nie-voedsel nie) $= \frac{2}{9}$ ✓ MA = 0,22 ✓ CA	1MA numerators and denominator 1CA answer **AO NPR** (2)	P L2 M

Ques	Solution	Explanation	TL
2.1.6	✓✓ RT Maize Meal/*Mieliemeel*	2RT correct food item (2)	F L2 M
2.1.7	✓✓O The grocery store/The retail shop may not be available in one's area of living./*Die kruidenierswinkel/kleinhandelwinkel is dalk nie in 'n mens se woongebied beskikbaar nie.* **OR/*OF*** ✓✓O The conducive/convinient environment./ *Die bevorderlike/gerief omgewing.* **OR/*OF*** ✓✓O The treatment one receives at the shop./ *Die behandeling wat mens by die winkel kry.* **OR/*OF*** ✓✓O The security around the shop./ *Die sekuriteit om die winkel.*	2O reason (2)	F L4 D

Ques	Solution	Explanation	TL
2.2.1 (a)	Annual taxable income/ *Jaarlikse belasbare inkomste* ✓ MA = 13 × R46 294,08 = R601 823,04✓A **OR** Normal taxable income = R46 294,08 × 12 ✓MA = R555 528,96 ∴ R555 528,96 + R46 294,08 = R601 823,04✓A	1MA multiplying monthly income by 13 1A annual taxable income 1MA multiplying monthly income by 12 1A annual taxable income **AO** (2)	F L2 M
2.2.1 (b)	✓✓A Bracket 4/4/Four/Salary block Four/ *Kerf 4/4/vier/Salaris blok 4*	**CA from 2.2.1 (a)** 2 CA correct tax brackets (2)	F L2 M
2.2.2	Annum tax due/ *jaarlekse belasting verskuldig* ✓RT ✓SF $= 121\,475 + \frac{36}{100} \times (601\,823{,}04 - 512\,800)$ $= 121\,475 + \frac{36}{100} \times (89\,023{,}04)$ = 121 475 + 32 048,2944 ✓CA = 153 523,29 – 17 235 ✓ MA = 136 288,29 ✓CA Monthly tax due/*Maandelikse belasting verskuldig* $= \frac{R136\,288{,}2944}{12}$ = R11 357,36 ✓CA ✓O The claim is VALID/*Die bewering is KORREK.*	**CA from 2.2.1 (a)** 1RT correct bracket 1SF correct substitution 1CA simplification 1MA subtracting rebate 1CA annual tax **If learners work with bracket 1** Allocate 4/7 marks 1CA monthly tax 1O conclusion (7)	F L4 D

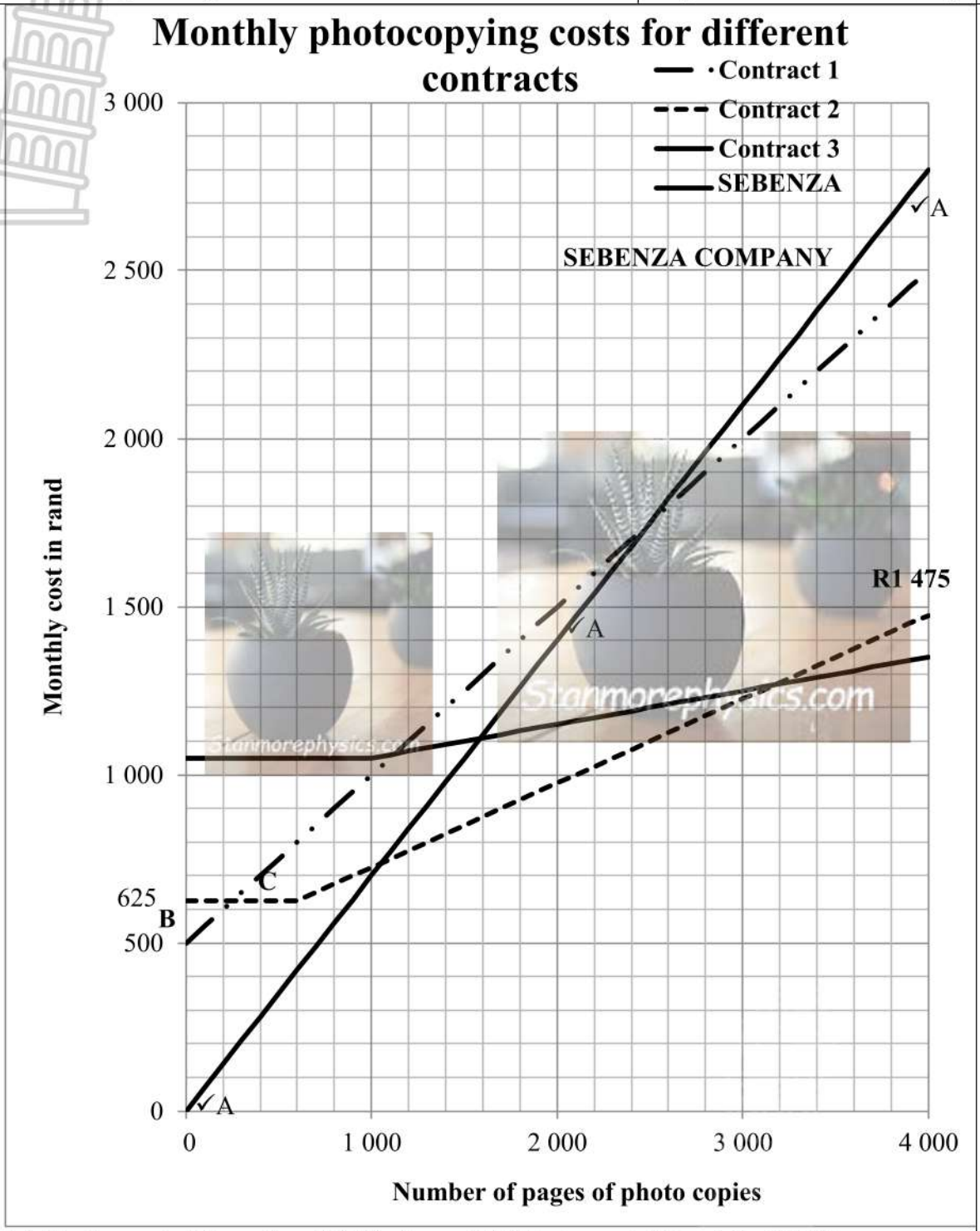
Ques	Solution	Explanation	TL
2.2.3	✓✓ O Contributing to a registered medical aid/scheme./*Bydra tot 'n geregistreerde mediese fonds/skema* **OR/*OF*** ✓✓ O Contributing toward a retirement annuity fund/*Dra by tot 'n uittree-annuïteitsfonds*. **OR/*OF*** Donate to a registered charity organisation/*donasie aan geregistreerde welsynsorganisasie*	2O reason (2)	F L4 D
2.2.4	✓✓ O To ensure that those who earn more contribute a greater share to the national coffers (or treasury)./*Om te verseker dat diegene wat meer verdien 'n groter deel tot die nasionale koffers (of tesourie) bydra.* **OR/*OF*** ✓✓ O It ensures fair contribution across different levels of income/*Dit verseker billike bydrae oor verskillende inkomstevlakke.*	2O reason (2)	F L4 D
		[30]	

QUESTION 3/*VRAAG* 3		**[30 Marks/*PUNTE*]**	
Ques	**Solution**	**Explanation**	**TL**
3.1.1	✓✓A Thirty million seven hundred and fifty-four thousand nine hundred and thirty one/*Dertig miljoen sewehonderd vier en vyftig duisend negehonderd een en dertig.*	2A correct number in words (2)	D L1 E
3.1.2	✓A ✓A Multiple/compound bar graph./ *saamgestelde staafgrafiek*	1A multiple/compound 1A bar graph (2)	D L1 E
3.1.3	✓ A ✓A 2021 and/*en* 2022 **Accept/*Aanvaar*:** 2,79% and/*en* 3,8% **[1 mark]** **OR/*OF*** ✓A ✓A 2020 and/*en* 2021 **Accept/*Aanvaar*:** 0,11% and/*en* 2,79% **[1 mark]**	1A 2021 1A 2022 1A 2020 1A 2021 (2)	D L2 D
3.1.4	Teenager pregnant/*Tienerswangerskappe* $= (30\ 754\ 931) \times \frac{1}{3} \times 3{,}8\%$ ✓ MA $= 10\ 251\ 643{,}67 \times 3{,}8\%$ = 389 562 or 389 563 ✓ CA	1MA multiplying population by $\frac{1}{3}$ and 3,8% 1CA number of females (2)	D L3 M
3.1.5 (a)	✓✓ O Late registration from 2019./*Laar registrasies vir 2019*	2O reason (2)	D L4 M
3.1.5 (b)	✓✓ O The number was too small./*Die getal was te klein* **OR/*OF*** ✓✓ O 14-year-olds did not fall pregnant/births not registered./*14-jariges was nie swanger nie/geboortes nie geregistreer nie.*	2O reason (2)	D L4 M

Ques	Solution	Explanation	TL
3.1.6	2019 late registrations/*2019 laat registrasie* $= 1\ 003\ 307 \times \frac{10,366}{100}$ $= 104\ 002$ ✓A 2020 births/*2020 geboortes* $= 1\ 003\ 307 - 104\ 002$ $= 899\ 305$ ✓CA Non-teenage births/*nie-tiener geboortes* ✓MA $= 899\ 305 - (35\ 000 + 15)$ $= 864\ 290$ ✓CA	1A 2019 late registrations subtracting correct % 1CA 2020 births 1MA adding and subtracting 1CA simplification (4)	D L3 D
3.2.1	Growth chart/*Groeikaart* ✓✓A	2A correct graph (2)	D L1 E
3.2.2	75^{th} ✓✓RT	2RT correct percentile (2)	D L1 E
3.2.3	✓ RT ✓ O ✓ O 75% of the other boys will weigh more than him and 25% will weigh less than him. *75% van die ander seuns sal meer weeg as hy en 25% sal minder weeg as hy.*	1RT 75 and 25 1O 75 more 1O 25 less (3)	D L4 M
3.2.4	✓✓A Q1/Lower quartile/*Laer kwartiel*	2A correct quartile (2)	D L2 M
3.2.5	✓✓O It helps you or your doctor, and any health professional to keep track of how your baby is growing./*Dit help jou of jou dokter en enige gesondheidswerker om tred te hou met die groei van jou baba.*	2O reason (2)	D L4 M
3.2.6	Range/ *Omvang* ✓RT $= 75^{th} - 25^{th}$ ✓ MA ✓ CA = 50 percentiles above/*persentiele bo*	1RT identify the boy's position 1MA subtract correct values 1CA difference (3)	D L2 M
		[30]	

QUESTION/*VRAAG* 4		**[36 MARKS/*PUNTE*]**	
Q/*V*	**Solution/*Oplossing***	**Explanation/*Verduideliking***	**T&L**
4.1.1	✓✓A Continuous data/*deurlopende data*. ✓✓ A	2A continuous (2)	D L1 M
4.1.2	No mode/none/*Geen modus nie/geen*	2A no mode (2)	D L1 E
4.1.3 (a)	✓ MA 44 ; 48,8 ; 50 ; 51 ; 52 ; 53,7 ; 54 ; 56 ; 56,1 ; 56,6 Median/*Mediaan* = (52 + 53,7) ÷ 2 ✓ MA = 52,85/52,9 ✓CA	1MA ascending/descending 1MA adding and dividing by 2 1CA median **AO** (3)	D L2 E
4.1.3 (b)	$44{,}35 = \frac{40 + 41 + 42 + 42{,}5 + 46 + 46 + 2C + 53 + 53}{10}$ $44{,}35 = \frac{363{,}5 + 2C}{10}$ ✓ MA $10 \times 44{,}35 = 363{,}5 + 2C$ $2C = 443{,}5 - 363{,}5$ ✓ S $\therefore \quad C = \frac{80}{2}$ $C = 40$ ✓ CA	1MA adding all weights and mean concept 1MA changing the subject of the formula 1CA value of **C** **AO** (3)	D L2 E
4.1.4	IQR = Upper quartile – Lower quartile *IKR = Boonste kwarftiel – Onderste kwartiel* $= Q_3 - Q_1$ $6{,}9 = 57 - Q_1$ ✓SF $Q_1 = 57 - 6{,}9$ ✓ MA $= 50{,}1$ ✓ CA	1SF correct substitution 1MA changing the subject of the formula 1CA lower quartile. (3)	D L3 E

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.2.1	1 100 ✓✓ RT **[Accept values from 1 050 to 1 100]/** ***[Aanvaar waardes van 1 0501 tot 100]***	2RT number of copies (2)	F L2 M
4.2.2	✓✓O The mothly cost do not change with the number of copies made/Die *uitgawes verander nie met die aantal kopieë gemaak nie.*	2O correct explanation (2)	F L2 M
4.2.3	Contract 3/*Kontrak 3* ✓✓RT	2RT correct contract (2)	F L2 E
4.2.4	Total cost/*Totale koste* ✓RT ✓✓A ✓A ✓A = R625 + R0,25 (number of copies – 600) **OR/*OF*** Total cost/*Totale koste* ✓RT ✓✓A ✓A = R625 + R0,25 (n – 600) ✓A where n is the number of copies/*waar n die aantal bladsye*.	1RT constant cost (R625) 2A R0,25 1A number of copies 1A minus 600 1RT constant cost (R625) 2A R0,25 1A number of copies 1A minus 600 (5)	F L4 D

Q/*V*	Solution/*Oplossing*	Explanation/*Verduideliking*	T&L
4.2.5			F L2 M

1A Starting point **(0 copies ; R0,00 charge)**/*1A Begin punt **(0 kopieë ; R0,00)***
1A end point **(4 000 ; 2 800)**/1A eindpunt **(4 000 ; 2 800)**
1A connecting points with a straight line./*1A kruispunte met 'n reguit lyn*

(3)

Ques	Solution	Explanation	TL
4.3	Interest 1st year/*Rente 1ste jaar* $= \frac{6}{100} \times$ R1 250 000 ✓MA = R75 000 ✓ CA Amount at the end of year 1 = R1 250 000 + R75 000 = R1 325 000✓CA Interest 2nd year:/ *Rente 2de jaar* $= \frac{6}{100} \times$ R R1 325 000 = R79 500✓CA Amount at the end of year 2 = R1 325 000 + R79 500 = R1 404 500 ✓ CA Interest for/*rente vir* $\frac{1}{4}$ a year/*'n jaar*: $= \frac{6}{100} \times \frac{1}{4} \times$ R1 404 500 ✓MA = R21 067,50 Amount at the end of year $\frac{1}{4}$ = R1 404 500 + R21 067,50 = R1 425 567,50✓ CA Total interest earned/*totale rente verdien* = R1 425 567,50 – R1 250 000 = R175 567,50✓CA ∴ Interest is not enough/sufficient ✓O **OR/OF**	1MA calculating the interest 1CA 1st year interest 1CA amount end of year 1 1CA 2nd year interest 1CA amount end of year 2 1MA calculating % for quarter of a year 1CA amount end of $\frac{1}{4}$ year 1CA total interest 1O conclusion	F L3 M

	Total interest earned/*totale rente verdien* = R 75 000 + R 79 500 + R21 067,50 = R175 567,50 ✓CA ∴ Interest is not enough/sufficient ✓O **OR/*OF*** Amount at the end of year 1 $= \frac{106}{100} \times$ R1 250 000 ✓A ✓MA = R1 325 000 ✓ CA Amount at the end of year 2 $= \frac{106}{100} \times$ R R1 325 000 ✓MA = R1 404 500 ✓CA Interest for/*rente vir* $\frac{1}{4}$ a year/*'n jaar*: $= \frac{6}{100} \times \frac{1}{4} \times$ R1 404 500 ✓MA = R21 067,50 Amount at the end of year $\frac{1}{4}$ = R1 404 500 + R21 067,50 = R1 425 567,50 ✓ CA Total interest earned/*totale rente verdien* = R1 425 567,50 – R1 250 000 = R175 567,50 ✓CA ✓O ∴ Interest is not enough/sufficient/ Die *rente is nie genoeg nie/nie voldoende nie* **OR/*OF***	1CA total interest 1O conclusion 1A increased percentage 1MA calculating the interest 1CA amount end of year 1 1MA calculating the interest 1CA amount end of year 2 1MA calculating % for quarter of a year 1CA amount end of $\frac{1}{4}$ year 1CA total interest 1O conclusion	

Ques	Solution	Explanation	TL
	Total amount /totale bedrag ✓MA ✓A ✓MA✓MA ✓A✓MA = R1 250 000 × 1,06 × 1,06 × 1,015 = R1 425 567,50✓ CA Total interest earned/*totale rente verdien* = R1 425 567,50 – R 1 250 000 = R175 567,50✓CA ✓O ∴ Interest is not enough/sufficient/Die *rente is nie genoeg nie/nie voldoende nie*	1A increased percentage 1MA multiplying by R1 250 000 1MA multiplying by 1,06 1MA multiplying by another 1,06 1A 0,015 1MA multiplying by 1,015 1CA amount end of $2\frac{1}{4}$ years 1CA total interest 1O conclusion (9) -If learners use the formula, it must be 100% correct for full marks. -If there is a mistake with the formula, allocate 0 marks	
		[36]	

QUESTION/*VRAAG* 5		**[24 MARKS/*PUNTE*]**	
Q/V	**Solution/Oplossing**	**Explanation/Verduideliking**	T&L
5.1.1	Descending/*Dalend* ✓✓A	2A correct order (2)	D L1 E
5.1.2	Salaries of all the top five world players is in 100 000 000/100 millions/*Salarisse van al die top vyf wêreldspelers is in 100 000 000/100 miljoen.* ✓✓O **OR/*OF*** Salary is in hundred million digits.✓✓O	2O correct explanation (2)	F L4 M
5.1.3	Christiano Ronaldo salary/*se salaris* = 200 0000 000 + 60 000 000 = 260 000 000$ ✓MA salary in rands/ *salaris in rand* $= \frac{260\ 000\ 000}{0{,}05644617}$ ✓MCA ✓A = R 4 606 158 389✓CA Top 11 DSTV players' salary/*Top 11 spelers se salaris* : C Ronaldo's = 6 860 000 : 4 606 158 389 ✓MCA = 1 : 671,45✓CA	1A total salary 1MCA numerator 1A denominator 1CA simplification 1MCA ration in correct order 1CA simplified **NPR** (6)	F L3 M
5.1.4	Probability/*Moontlikheid* $= \frac{12}{22}$ ✓A × 100%✓MA = 54,55% ✓CA	1A numerator and denominator 1MA multiply by 100% 1CA answer (3)	P L3 M

Accept

Probability = $\frac{1}{11}$ × 100%

= 9,09%

Full marks

Q/V	Solution/Oplossing	Explanation/Verduideliking	T&L
5.2.1	✓MA **G** = 3 484 336 – (2 073 501 + 43 343 + 448 122 + 293 743) ✓MA = 3 484 336 – 2 858 709 = 625 627 ✓CA	1MA adding correct values 1MA subtracting from total 1CA value of G **AO** (3)	F L2 E
5.2.2	Total income */totale inkomste* ✓MA = 716 603 + 2 227 636 + 251 027 + 519 604 + 312 290 = 4 027 160 ✓A **H** = Total income/*totale inkomste* – Total expenditure/*totale uitgawes* ✓SF = R4 027 160 – R3 832 604 = R194 556✓CA ✓ CA It is a **Surplus** /*Dit is 'n* ***surplus***	1MA adding correct values 1A total income 1SF correct substitution 1CA simplification 1CA surplus (5)	F L2 E
5.2.3	% increase/*verhoging* = $\frac{\textbf{Difference in employee costs}}{\textbf{Original budgeted employee costs}} \times \textbf{100\%}$ ✓ RT ✓ SF $= \frac{1\,040\,938\,000 - 961\,353\,000}{961\,353\,000} \times 100\%$ = 8,28 ✓ CA ≈ 8,3 %	1RT correct values 1A numerator 1A denominator (3)	F L2 E
		[24]	

TOTAL/*TOTAAL*: 150