DEPARTMENT OF EDUCATION

DEPARTEMENT VAN ONDERWYS

LEFAPHA LA THUTO

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PROVINCIAL PREPARATORY EXAMINATION

GRADE 12

MATHEMATICAL LITERACY P1

SEPTEMBER 2021

INSTRUCTIONS AND INFORMATION

1. This question paper consists of FIVE questions. Answer ALL the questions.

2.
   2.1 Use the ANNEXURES in the ADDENDUM to answer the following questions:

   - ANNEXURE A for QUESTION 2.1
   - ANNEXURE B for QUESTION 4.1

   2.2 Answer QUESTION 3.1.7 on the attached ANSWER SHEET.

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 off 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 necessarily drawn to scale, unless stated otherwise.

10. Write neatly and legibly.

11. For the purposes of answering this question paper, a VAT rate of 15% must be used where necessary.

QUESTION 1

1.1

The TABLE below shows the unemployment rate in South Africa for 2019-2020 by age group.

TABLE 1: UNEMPLOYMENT RATE IN SOUTH AFRICA FOR 2019-2020 BY AGE GROUP.

Age Group	2019				2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
15-24	55,2%	56,4%	58,2%	58,1%	59%	52,3%	61,3%	63,2%
25-34	34,2%	35,6%	36,1%	35,6%	37,3	28,9%	37,8%	41,2%
35-44	21,7%	23,3%	22,9%	23%	24%	19,3%	26,1%	27,4%
45-54	15,6%	17,2%	17,2%	17,5%	17,5%	14,2%	19,1%	19,3%
55-64	10,1%	10,5%	9,9%	9,2%	10%	9,3%	12,6%	12,5%

[Adapted from www.statista.com]

NOTE: Q = Quarter

Use TABLE 1 to answer the questions that follow.

1.1.1   Define the term *unemployment rate* in the context above.   (2)

1.1.2   Which age group has the highest unemployment rate in Q4 of 2019?   (2)

1.1.3   Between which two consecutive quarters was there a difference of 0,2 % in 2020 in the 45-54 age group?   (2)

1.1.4   What type of graph can be used to represent the above data?   (2)

1.1.5   Which age group showed a decrease in the unemployment rate in Q4 for 2020?   (2)

1.1.6   Arrange the 35-44 age group's quarters for 2019 in descending order.   (2)

1.2 To prevent the spread of Covid-19 infection, it is mandatory to wear a face mask. TABLE 2 below shows the cost price of various 3-ply disposable face masks.

TABLE 2: COST PRICE OF DISPOSABLE MASKS FROM DIFFERENT SUPPLIERS

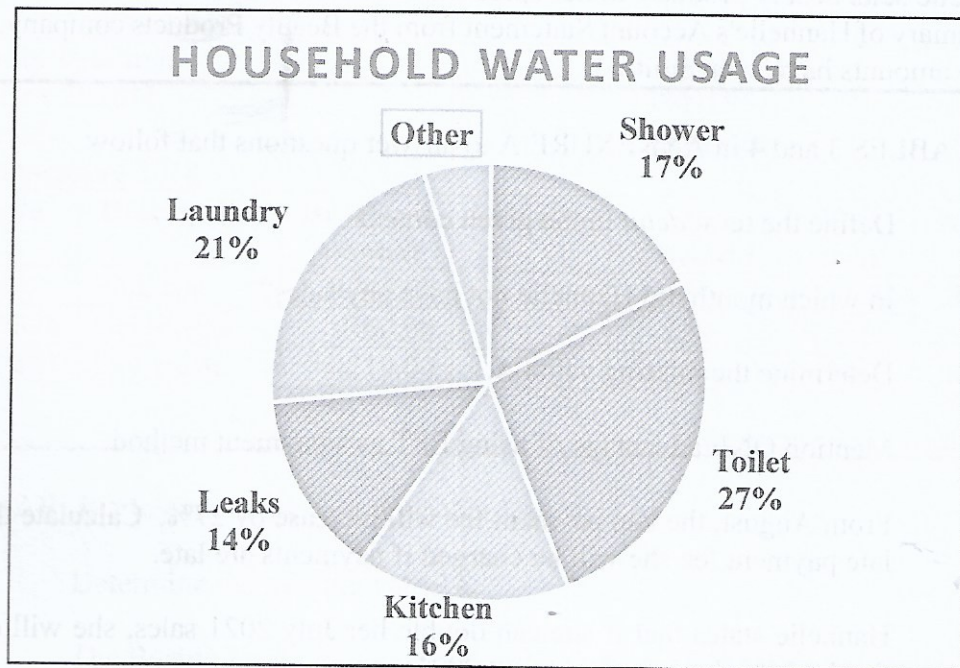|	Colour	Number of masks/box	Price per box	Suppliers
	Blue	50	R35,00	Medmart
	Black	50*	R19,99	Medq supplies
	Pink	50	R100,00	Foamy
	Green	50	R110,40	Elite Hygiene

[Adapted from www.googleadservices.com]

NOTE: * bulk sales – minimum of 2 000 boxes

Use TABLE 2 to answer the questions that follow.

1.2.1 Define the term *cost price* in the given context. (2)

1.2.2 Determine the price of ONE blue face mask? (2)

1.2.3 How much will you pay for 2 000 boxes of black masks? (2)

1.2.4 Which supplier is the most expensive? (2)

1.3   In South Africa, water is a scarce resource. Below is a pie chart depicting household water usage in South Africa

HOUSEHOLD WATER USAGE

[Adapted from www.Statisticshowto.com]

Use the information above to answer the questions that follow.

1.3.1   Determine the percentage for Other uses.   (3)

1.3.2   Which household activity uses the third highest percentage of water?   (2)

1.3.3   Name one other place where water is used in the household.   (2)

[27]

QUESTION 2

2.1

> Hannelie sells beauty products in her spare time for extra income. Annexure A shows a summary of Hannelie's Account Statement from the Beauty Products company. Some of the amounts have been omitted.

Use TABLES 3 and 4 in ANNEXURE A to answer questions that follow.

2.1.1   Define the term *debit* in the given context   (2)

2.1.2   In which month did Hannelie not have any sales?   (2)

2.1.3   Determine the missing value **A**.   (2)

2.1.4   Mention ONE advantage of using EFT as a payment method.   (2)

2.1.5   From August, the late payment fee will increase by 27%. Calculate the new late payment fee she will be charged if payments are late.   (4)

2.1.6   Hannelie states that if she can double her July 2021 sales, she will qualify for the 25% discount in August 2021.

    Verify, showing ALL calculations, whether Hannelie's statement is correct.   (4)

2.1.7   Determine the discount amount on Hannelie's May 2021 sales.   (3)

2.2   TABLE 5 shows an extract from the Tax invoice Hannelie received for her July 2021 sales.

TABLE 5: EXTRACT FROM HANNELIE'S TAX INVOICE FOR JULY 2021 SALES

Beauty Products					TAX INVOICE	
PO Box 392011					35861195	
Bramley					**Campaign: 07**	
Johannesburg 2018						
Code	Description	Brochure Amount	Quantity	% Discount	You earn	Amount Due
07813	Pink bag	R349.00	1	12%	R41.88	R307.12
1397876	Gel Masks	R60.00	2	25%	R15.00	R45.00
1307857	Eye cream	R219.00	1	A	R54.75	R164.25

[Adapted from an original tax invoice]

Use TABLE 5 to answer the questions that follow.

2.2.1   Determine the missing value **A**.   (3)

2.2.2   The Beauty Products company has a mark-up of 65%. Hence, determine the
cost price of the Pink bag.   (4)

2.3

Hannelie who is 56 years old, works at a local bank during the day. She receives an average monthly taxable income of R23 502,50 for the 2020/2021 tax year. Hannelie is not a member of a medical aid.

TABLE 6 shows the tax table for the 2020/2021 tax year.

TABLE 6: 2020/2021 TAX YEAR

ANNUAL TAXABLE INCOME (R)	RATES OF TAX (R)
1 – 205 900	18% of taxable income
205 901 – 321 600	37 062 + 26% of taxable income above 205 900
321 601 – 445 100	67 144 + 31% of taxable income above 321 600
445 101 – 584 200	105 429 + 36% of taxable income above 445 100
584 201 – 744 800	155 505 + 39% of taxable income above 584 200
744 801 – 1 577 300	218 139 + 41% of taxable income above 744 800
1 577 301 and above	559 464 + 45% of taxable income above 1 577 300
TAX REBATES	
Primary (under 65)	R14 958
Secondary (65 and older)	R8 199,00
Tertiary (75 and older)	R2 736

[Adapted from www.sars.gov.za]

Use TABLE 6 to answer the questions that follow.

2.3.1   From what date (day and month) in the year does the tax year run for an individual tax payer?   (2)

2.3.2   Calculate Hannelie's monthly personal income tax for the 2020/21 tax year.   (7)

           [35]

QUESTION 3

3.1   TABLE 7 Shows the top medal winners from the 2020 Olympic Games that was held in Tokyo from 23 July 2021 to 08 August 2021.

TABLE 7: THE TOP 10 COUNTRIES MEDAL WINNERS FROM THE 2020 SUMMER OLYMPICS.

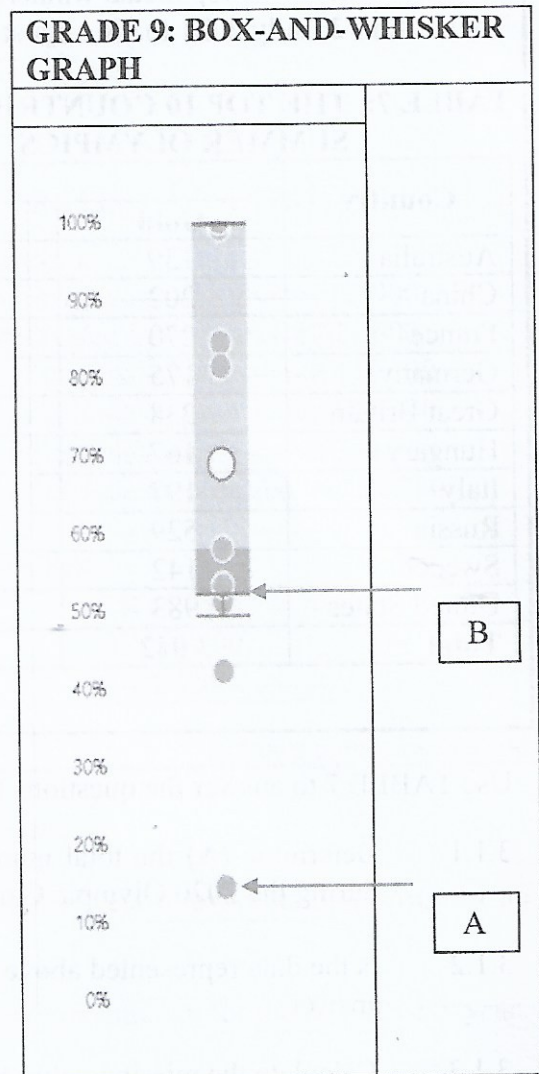| Country	Medals			Total
	Gold	Silver	Bronze	
Australia	139	154	182	475
China	202	147	126	475
France	270	231	250	751
Germany	175	182	216	573
Great Britain	238	B	270	776
Hungary	167	144	165	476
Italy	197	168	191	556
Russia	529	446	442	1 417
Sweden	142	161	174	477
United States	983	766	679	2 428
Total	3 042	2 667	2 695	A

[Adapted from statista.com]

Use TABLE 7 to answer the questions that follow.

3.1.1   Determine (**A**) the total number of medals won by these top 10 countries during the 2020 Olympic Games.   (2)

3.1.2   Is the data represented above discrete or continuous? Give a reason for your answer.   (3)

3.1.3   Calculate the missing value **B**.   (2)

3.1.4   Determine the range of bronze medals of these ten countries.   (3)

3.1.5   Australia and China has the same total number of medals. Which of the TWO countries mentioned, fared better? Give a reason for your answer.   (3)

3.1.6   Calculate the mean number of gold medals for these 10 countries.   (3)

3.1.7   The incomplete graph showing the top ten countries' medal winners has been drawn on a grid on ANSWER SHEET 1.

Use TABLE 7 above to complete the graph for Russia's number of medals on the same grid on ANSWER SHEET 1.   (4)

3.2   TABLE 8 and TABLE 9 below show School X's Grade 12 NSC results for 2019. The 2019 results is also represented in a box-and-whisker graph.

TABLE 8: GRADE 12 NSC RESULTS	
2019	
Subject	**Pass %**
Agricultural Sciences	51,0%
Business Studies	57,9%
Economics	14,3%
English First Additional Language	99,2%
Geography	53,2%
History	84,4%
Life Orientation	100,0%
Life Sciences	53,1%
Mathematical Literacy	81,4%
Mathematics	42,1%
Physical Sciences	57,9%
Tourism	100,0%

GRADE 9: BOX-AND-WHISKER GRAPH

[Adapted from NCDoE NSC 2019 results]

Use TABLE 8 and TABLE 9 to answer the questions that follow.

3.2.1   Which subject is represented by **A**?   (2)

3.2.2   **B** represents Quartile 1. Explain how to calculate Quartile 1.   (3)

3.2.3   Calculate the Inter-Quartile Range for School X's subjects.   (6)

                                                          [31]

QUESTION 4

4.1

> Hans is an avid Springbok supporter. He plans to go to the next Rugby World Cup in France in 2023 (08 September 2023 – 28 October 2023). Rugby World Cup Packages are now on sale for the rugby enthusiasts. TABLE 10 and 11 in Annexure B shows the different packages available.
>
> ANNEXURE B shows the full Rugby World Cup packages.

Use TABLE 10 and TABLE 11 to answer the questions that follow.

4.1.1   Determine the difference in the price of tickets (in South African rand) between attending 3 matches and 4 matches. Round off your answer to the nearest ten rand.   (4)

4.1.2   If Hans was to choose one package, what is the probability (as a percentage) that he would be at the opening match of the Rugby World Cup?   (3)

4.1.3   Calculate how much in percentage Hans will be saving if he chooses to take the Follow the South African tour package instead of all the individual match packages when South Africa will be playing.   (6)

4.1.4   Calculate the percentage difference in the package prises between the South Africa against Scotland match and between the South Africa against the Europe match.

You may use the following formula:

$$\% \text{ Difference} = \frac{\text{Scotland} - \text{Europe}}{\text{Europe}} \times 100\%$$

(2)

4.1.5   Hans wants to save for his pocket money. He has the following options:

Option A: Investing R25 000,00 for 2 years at 4,95% p.a. Simple Interest
Option B: Investing R20 000,00 for 2years at 6,33% p.a. Compounded yearly

Calculate, showing ALL calculations, which option will give him the most interest.   (7)
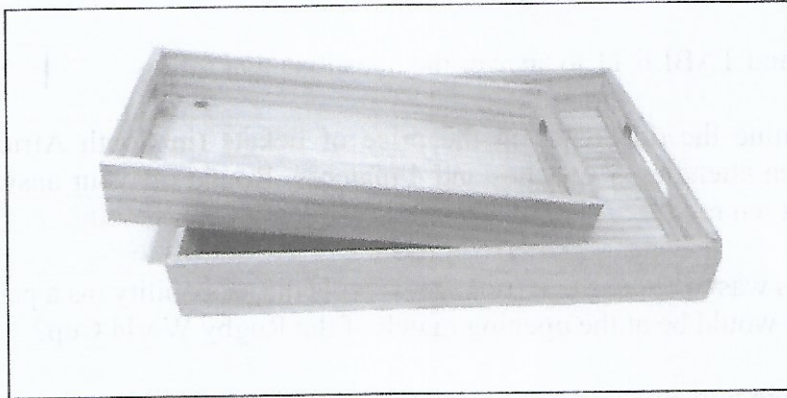
4.2 John makes wooden trays which he sells for a living. A new hotel opened and they ordered 560 trays from him. TABLE 12 shows the cost and income of the trays.

TABLE 12: COST AND INCOME OF THE TRAYS

No of trays	0	100	200	300	400	500
Cost (R)	10 000,00	14 000,00	18 000,00	22 000,00	26 000,00	30 000,00
Income (R)	0	12 000,00	24 000,00	36 000,00	48 000,00	60 000,00

[Adapted from www.indiamart.com]

Use TABLE 12 to answer the questions that follow.

4.2.1 John's total cost for the manufacturing of the trays includes labour, rent (fixed costs) and variable costs, like the wood, varnish, screws and glue.

Calculate the income amount per tray.   (2)

4.2.2 Determine the cost to make one tray excluding the fixed cost of R10 000.   (4)

4.2.3 John projected the total profit from ALL the trays to be R32 600,00.
Verify if his projection is correct.   (7)

                                                                                                              [35]

QUESTION 5

TABLE 13 shows the 5 day weather forecast of three South African cities.

TABLE 13: 5 DAY WEATHER FORECAST OF 3 SOUTH AFRICAN CITIES

Cape Town			Pietermaritzburg			Kimberley		
Max.	Min.	Weather	Max.	Min.	Weather	Max.	Min.	Weather
16	12	Showers	31	10	Cloudy	24	11	Cloudy
15	11	Rain	26	11	Cloudy	23	3	Sunny
16	8	Showers	18	9	Showers	17	2	Sunny
17	9	Sunny	16	8	Showers	18	3	Sunny
16	8	Sunny	19	8	Cloudy	19	3	Sunny

[Adapted from www.accuweather.com2021/08/16]

NOTE: Temperatures are in °C
   Max. = Maximum
   Min. = Minimum

Use TABLE 13 to answer the questions that follow.

5.1.1   Determine the modal minimum temperature of all three cities combined.   (2)

5.1.2   Describe in words the probability of having rain in Kimberley for the next 5 days.   (2)

5.1.3   Which city will have the most minimum temperatures below 10°C?   (2)

5.1.4   According to the given weather forecast, what type of weather can be expected in Pietermaritzburg when the temperature is 9°C?   (2)

5.1.5   With reference to the maximum temperatures, which city has a range of 15°C? Show your calculation.   (3)

5.2   Ms Johnson discovered an old Water and Electricity account of 2020.
TABLE 14 shows her Water and Electricity Account

TABLE 14: WATER AND ELECTRICITY ACCOUNT

Date	Description	Current	Total
26/10/20	Balance brought forward		1 090,52
19/11/20	Incentive payment	-120,30	
16/11/20	Payment received		-R1 100,00
23/11/20	Rates residential	890,61	
	Value exclusion	-12,97	
	Sewerage	174,33	
	Refuse removal	124,45	
	Electricity: Read from 15/10/2020 to 06/11/2020 Reading (69 460 – 69 346)	201,89	
	Water	26,59	
		1 284,60	1 275,12

[Adapted from original account]

Use TABLE 14 above to answer the questions that follow.

5.2.1   Explain the term *balance brought forward*.   (2)

5.2.2   Determine Ms Johnson's **annual** Residential rates (rounded to the nearest hundred rand).   (3)

5.2.3   Determine how many electricity units Ms Johnson used for the period 15/10/20 to 06/11/2020.   (2)

5.2.4   How many days are there from 15/10/2020 to 06/11/2020?   (2)

5.2.5   Hence, calculate Ms Johnson's daily average electricity usage for the period 15/10/20 to 06/11/20.   (2)

                                          [22]

                                          TOTAL: 150

ANNEXURE A

QUESTION 2

TABLE 3: ACCOUNT STATEMENT OF HANNELIE FOR THE PERIOD FEBRUARY 2021 TO JULY 2021.

Beauty Products PO Box 392011 Bramley Johannesburg 2018 **Personal details:** Hannelie Stuart 23 Loop Street Kimberley 8301 Northern Cape		**ACCOUNT STATEMENT** 35861195 **Campaign:** 07 **Credit Limit:** R4 800.00 **Account number:** 2872111 **Date:** 30 July 2021

Date	Due Date	Invoice	Description	Debit (R)	Credit (R)	Amount Due
05-Jan-21			**Opening Balance**		32.18	
27-Feb-21	24-Mar-21	34982626	Sales W2475167	1 479.80		1 447.62
14-Apr-21	05-May-21		Late Payment Fee	50.00		1 497.62
17-Apr-21			Payment - EFT		1 500.00	-2.38
27-Apr-21	24-May-21	35335636	Sales W3183680	2 510.79		A
27-May-21			Payment - EFT		2 510.00	-1.59
29-May-21	23-Jun-21	35534346	Sales W3568524	2 671.22		2 669.63
30-Jun-21			Payment - EFT		2 670.00	-0.37
30-Jun-21	26-Jul-21	35716236	Sales W3908761	1 324.32		1 323.95
28-Jul-21			Payment - EFT		1 330.00	-6.05
30-Jul-21	24-Aug-21	35861195	Sales W4220986	1 575.33		1 569.28
30-Jul-21			**Closing Balance**	**1 569,28**		

[Adapted from an original account statement]

TABLE 4: BEAUTY PRODUCT'S DISCOUNT STRUCTURE

Order Size	Discount Level
R0 to R569	0%
R570 to R894	15%
R895 to R2 119	20%
R2 120 to R7 799	25%
R7 800 & more	30%

[Adapted from an original account statement]

NOTE: EFT – Electronic Fund Transfer

ANNEXURE B

QUESTION 4.1

TABLE 10: FULL PACKAGE GROUP TOURS AVAILABLE FOR THE RUGBY WORLD CUP FRANCE 2023.		
Matches	**Price per person sharing**	**Dates/Duration**
South Africa vs Scotland	R38 100,00	07 – 11 Sept 2023
South Africa vs Europe	R35 800,00	14 – 18 Sept 2023
Follow South African tour	R77 535,00	07 Sept – 02 Oct 2023
South Africa vs Ireland	R42 630,00	20 – 24 Sept 2023
South Africa vs Asia	R35 575,00	28 Sept – 02 Oct 2023
Quarter Finals	R54 760,00	12 – 17 Oct 2023
Semi's & Finals	R99 725,00	18 – 30 Oct 2023
Quarter Finals to Finals	R121 460,00	12 – 29 Oct 2023

[Adapted from www.edusport.co.za]

NOTE: All packages include return flights, accommodation, hotel and stadium transfers, match tickets

TABLE 11: RUGBY WORLD CUP TICKET PRICES

Euro per person	**Number of matches**
€58	3 matches in a group
€70	4 matches in a group
€135	Follow my team packs (All of your team's matches up to the quarter finals)

[Adapted from www.rugbyworldcup.com]

NOTE: 1 South African Rand (R) ≈ 0,0578 Euros (€)

[Adapted from exchangerates.org.uk, 2021/08/15]

ANSWER SHEET

QUESTION 3.1.7

TOP TEN MEDAL WINNERS FROM THE 2020 SUMMER OLYMPIC GAMES HELD IN TOKYO 2021