KWAZULU-NATAL PROVINCE

EDUCATION

REPUBLIC OF SOUTH AFRICA

MATHEMATICAL LITERACY

GRADE 11

FINAL EXAM 2022

PAPER 1

DURATION: 2 HOURS **MARKS: 100**

INSTRUCTIONS & INFORMATION

- This paper consists of:
  5 QUESTIONS AND 10 PRINTED PAGES (Including this cover page and 3 Annexures)
- Answer ALL questions.
- All calculations and steps must be shown clearly in ink.

- Number the answers correctly according to the numbering system used in this question paper.
- Round off **ALL** final answers appropriately according to the given context unless stated otherwise.
- An approved calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
- Units of measurement must be indicated where applicable.
- Write neatly and legibly

Stanmorephysics

QUESTION ONE [21 MARKS]

1.1 In the table below, there are two advertisements showing the prices of different food items over a period of one year. Both advertisements are for Keith's Supermarket but the advertisement on the left is for June 2010 and other on the right is for June 2011.

KEITH'S SUPERMARKET	PRICE (June 2010)	KEITH'S SUPERMARKET	PRICE (June 2011)	AMOUNT BY WHICH THE ITEM INCREASED
Brown bread	R8,00	Brown bread	R8,50	R0.50
Milk 2L	R18,00	Milk 2L	R18,99	R0.99
Polony 1kg	R21,39	Polony 1kg	R21,99	R0.60
Maize Meal (5kg)	R22,99	Maize Meal (5kg)	R23,49	**A**
Washing Powder (2kg)	R39,99	Washing Powder (2kg)	R39,99	R0.00
TOTAL	**B**	TOTAL	**C**	

1.1.1 Calculate the value of **A**, the amount by which the price of Maize Meal increased from 2010 to 2011. (2)

1.1.2. Calculate the values of **B** and **C**, the TOTALS for June 2010 and for June 2011. (4)

1.1.3. Use the values calculated in 1.1.2 to calculate the percentage increase of the total cost using the following formula:

$$\%\ Increase = \frac{New\ value - Old\ value}{Old\ value} \times 100$$ (2)

1.1.4. What is the term used to describe the percentage increase in the price of food items found in 1.1.3? (2)

1.2 Mr. Xulu lives in Brakpan and he travels to Pretoria for work from Monday to Friday. The distance from Brakpan to Pretoria is 55km.

1.2.1 If the running cost of Mr. Xulu's vehicle is R3.85/km, calculate how much it would cost him for a **return trip** for the week. (3)

1.2.2 His wife suggests that he uses the Gautrain to work and back. A one- way ticket between Brakpan and Pretoria costs R125. Calculate his weekly cost of going to and from work on the Gautrain. (2)

1.3. Bonny recorded Graaff Reinet's temperatures in degrees Celsius from Wednesday, 13th of September to Friday, 22nd of September 2017. Study the information below and answer the questions that follow.

Dates	13	14	15	16	17	18	19	20	21	22
Min.	8	8	11	7	7	9	12	12	12	12
Max.	25	21	26	17	19	23	29	28	26	27

1.3.1 Arrange the maximum (max.) temperatures in ascending order. (2)

1.3.2. Write down the minimum (lowest) value of the minimum (min) temperature. (2)

1.3.3. Define the term "mode" in the above context. (2)
[21]

QUESTION 2 [18 MARKS]

2.1. Mr. Jacob does his banking with First National Bank. The statement in **ANNEXURE A** was sent to Mr. Jacob at the end of November. An extract of the banking fees for his Smart Account is given in **ANNEXURE B**.

2.1.1 How many days does this statement cover and how many statements did Mr Jacob receive for this account? (2)

2.1.2 What is the **total** monthly account fee **and** service fee payable on this account? (2)

2.1.3 Calculate the total bank charges for the month of October. (2)

2.1.4 Show by calculations how R11.95 VAT was calculated. (3)

2.1.5 In December Mr. Jacob made the following transactions.

- 2 cash withdrawal of R600 at FNB ATM
- 1 deposit of R900 at the FNB ATM
- 1 deposit of R2 500 in the bank.

By referring to the fee structure table in **ANNEXURE B**, Calculate the total service fee for these transactions. (4)

2.2 Nombulelo works as an insurance broker with a basic salary of R13 860. She also gets a commission of 5% of the total sales. Given below is Nombulelo's pay slip for the month of April 2017.

Bluegrass Insurance Brokers			
	SALARY ADVICE		
EMPLOYEE NAME:	Nombulelo Khuzwayo	BANKING DETAILS CBA Bank LTD	
ADDRESS:	27 Drum Street Empangeni 3917	Branch code: 023465 Account number: 34130251208	
I.D Number:	84031545632188	Date: 30 April 2017	
	PAYMENT SUMMARY		
Earnings		**Deductions**	
Basic Salary	R13 860	PAYE	R1 953,27
Commission	R 2 800	UIF	R 166,60
Gross Earnings	R16 660	**Total deductions**	**R2 119,87**
Net pay			

2.2.1 What does the abbreviation "UIF" stand for? (2)

2.2.2 Nombulelo claims that she made a total sale of R56 000 for the month of April 2017. Verify whether her claim is valid. (3)

[18]

QUESTION 3 [20 MARKS]

The Grade 11 learners from RedKing Secondary School are fundraising for their 2023 Matric Dance by selling Sports T-Shirts. The School has allowed them to use the Store Room at a rental cost of R950 per month. The cost of making the Sports T- Shirt is R85. They are selling them at R180 each.

The formula for calculating the cost of the Sports T-Shirt is given as follows:

Cost = R950 + (R85 x Number of T-Shirts)

TABLE FOR COST AND INCOME FOR SPORTS T-SHIRTS

NO. OF SPORTS T-SHIRTS	0	10	20	30	40	50
COST OF SPORTS T- SHIRTS IN Rands	950	1800	2650	**B**	4350	5200
INCOME OF SPORTS T-SHIRTS IN Rands	0	**A**	3600	5400	7200	**C**

3.1 Write the formula for calculating the income for selling the Sports T-Shirts in the form:
I = ---------- x number of T-Shirts (2)

3.2 Calculate the missing values A, B and C from the table. (6)

3.3 A graph for the cost of the Sports T-Shirts is drawn in **ANNEXURE C**. On the same system of axes, draw the graph for Income. Indicate the break-even point with the letter X on the graph. (5)

3.4 Explain the concept of Break-Even, according to the given context? (2)

3.5 Mr Ladipo said that the Grade 11's will make more than R3 000 in profit if they sell 45 Sports T-Shirts. Verify, using calculations if he is correct? (5)

[20]

QUESTION 4 [20 MARKS]

Jack and his cousin Danny are on holiday in KwaZulu Natal. After the April floods the availability of water was a major problem. Residents were faced with higher costs and thus were finding new methods to save water. The municipality in the area released the table below for their water tariffs.

TABLE 1: Water Structure for eThekwini Municipality 2022-2023

Step	*Consumption (KL)*	*Tariff per K/L (excl. 15 %VAT)*
1	0 – 6	Free
2	> 6 – 10.5	15.98
3	> 10.5 – 20	18.75
4	> 20 – 35	21.24
5	> 35 – 50	24.78
6	> 50	25.65

4.1 In your opinion why does the municipality not charge for the first 6 Kl of water? (2)

4.2 Jack's pet dog drank 10.5 Kl of water during the summer, which step on the tariff table will he be charged for? (2)

4.3 Why does the tariff rates increase depending on the volume of water used? (2)

4.4 Jack and Danny were staying at their uncle's house. They used 38 Kl of water for the month. Their water bill came to R739.43. Their uncle said that they were overcharged. Verify whether their uncle is correct. (5)

4.5 State two possible ways a household can save water. (2)

4.6. Jack and Danny were returning home to Nashville in USA, they would have to sail on three ships to reach their final destination. Before the ship left Durban harbour, Captain Marshal paid R409.67 including VAT for water to be filled into drums. How many Kl's of water would the captain receive? (7)

[20]

QUESTION 5 [21 MARKS]

The learners in both 11B (11pupils) and 11C (10 pupils) were given a Maths Literacy test out of 100 marks. The results are as follows:

11B	**32**	**41**	**50**	**57**	**45**	**36**	**22**	**61**	**57**	**38**	**57**
11C	**A**	**75**	**42**	**68**	**69**	**68**	**53**	**40**	**62**	**53**	

5.1 Is the above data discrete or continuous? Explain. (2)

5.2 Calculate the mean mark for 11B. (2)

5.3 The mean for 11C is 62. Calculate the missing value A. (3)

5.4 The median mark for 11B is 45. Calculate the median mark for 11C. (3)

5.5 What is the modal mark for 11C? (2)

5.6 In your opinion, which class performed better? Give TWO reasons to justify your opinion. (3)

5.7 The educator states that less than 40% of learners scored below 50 in both classes combined. Verify using calculations, if this is correct. (3)

5.8 What is the probability of randomly choosing a learner that scored above 50 in the 11B class? Give your answer as a percentage. (3)

[21]

TOTAL MARKS = 100

Annexure A (Question 2)

Mr Andy Jacob		**SMART ACCOUNT:**	**397465859939**
56 Stable Road		**Copy Tax Invoice/Statement:**	**13**
Uppertown		**01 September 2015 to 28 November 2015**	
1856		**Statement Date:**	**28 November 2015**

Bank Charges		Statement Balances	Interest Rates	
Bank Charges	R91.60	Opening Balance R5 254.69 Cr	Credit Interest Rate	0.00%
Subscription Fees	R0.00	Closing Balance R2 141.98 Cr		

Account Transactions

Date	Description		Amount	Balance	Bank Charges
	Opening Balance		**5 254.69 Cr**		
01 Sep	ATM Cash	Eldorado	100.00	5154.69 Cr	5.25
04 Sep	Debit card POS Purchase	Johnson	120.00	5034.69 Cr	
12 Sep	Debit card POS Purchase	Vodacom	1004.00	4030.69 Cr	
17 Sep	Debit card POS Purchase	Trading	2840.00	1190.69 Cr	
29 Sep	# Monthly account fee		12.50	1178.19 Cr	
29 Sep	# Service Fees		5.25	1172.94 Cr	
05 Oct	Debit card POS Purchase	Gift Shop	477.25	695.69 Cr	
07 Oct	ADT Cash deposit	TD mall	800.00 Cr	1495.69 Cr	5.60
12 Oct	Debit card POS Purchase	Spar	105.00	1390.69 Cr	
16 Oct	Debit card POS Purchase	PnP	305.00	1085.69 Cr	
17 Oct	ATM Cash	Bokville	200.00	885.69 Cr	6.55
20 Oct	ATM Cash	Eldorado	200.00	685.69 Cr	6.55
28 Oct	ADT Cash deposit	Southgate	2000.00 Cr	2685.69 Cr	14.00
29 Oct	Debit card POS Purchase	CNA	37.50	2648.19 Cr	
29 Oct	Debit card POS Purchase	Spar	140.00	2508.19 Cr	
29 Oct	# Monthly account fee		12.50	2495.69 Cr	
29 Oct	# Service Fees		13.10	2482.59 Cr	
29 Oct	# Cash deposit fee		19.60	2462.99 Cr	
30 Oct	Debit card POS Purchase	Woolies	169.32	2293.67 Cr	
31 Oct	Debit card POS Purchase	Edgars	126.22	2167.45 Cr	
31 Oct	Debit card POS Purchase	Miladys	155.94	2011.51 Cr	
11 Nov	Debit card POS Purchase	Checkers	130.00	1881.51 Cr	
13 Nov	Debit card POS Purchase	Hyper CD	40.90	1840.61 Cr	
13 Nov	Debit card POS Purchase	C gardens	60.00	1780.61 Cr	
18 Nov	ATM cash	Shell	400.00	1380.61 Cr	9.15
18 Nov	Debit card POS Purchase	Mr Price	209.98	1170.63 Cr	
25 Nov	ADT Cash deposit	Southgate	1000.00 Cr	2170.63 Cr	7.00
28 Nov	# Monthly account fee		12.50	2158.13 Cr	
28 Nov	# Service Fees		9.15	2148.98 Cr	
28 Nov	# Cash deposit fee		7.00	2141.98 Cr	
	Closing Balance		**2141.98 Cr**		

 # Inclusive of VAT @ 15% **Total VAT included on this statement = R11.95 Dr**

Annexure B

Question 2.1.5

Extract of banking fees for FNB Smart Account

Pay-As-You-Use Pricing Option	
Monthly Account Fee	R12,50
Cash Withdrawals	
Cash @ Till	FREE
FNB Slimline	R5,00
FNB ATM	R3,95 + R1,30 per R100
Other Banks' ATM	R6,50 + FNB ATM fee
FNB Branch/Cheque	R50,00 + R1,65 per R100
Deposits	
Cash Deposit at FNB ATM	R0,70 per R100 (minimum R5,50)
Cash Deposit at FNB Branch	R1,65 per R100 (minimum R5,50)
Cheque deposit at FNB branch and ATM	R22,50

education
Department:
Education
PROVINCE OF KWAZULU-NATAL

PINETOWN DISTRICT – MATHEMATICAL LITERACY

GRADE: 11
ASSESSMENT TYPE: November Formal Test - Paper One
MARKING GUIDELINE

Symbols	Explanation
M	Method
MA	Method with accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
RT/RG/RM	Reading from Table/Graph/Map.
F	Choosing the correct formula
SF	Substitution in Formula
J	Justification
P	Penalty
R	Reason

QUESTION NUMBER	SOLUTION	MARK EXPLANATION	MARKS	SECTION & TAX LEVEL
QUESTION 1				
1.1.1	A = R23.49 – R22.99 ✔ MA = R0.50 ✔ A	1 MA 1 A	2	F L1
1.1.2	B = R8 + R18 + R21.39 + R22.99 + R39.99 ✔ MA = R110.37 ✔ CA C = R 8.50 + R18.99 + R21.99 + R23.49 + R 39.99 ✔ MA = R112.96 ✔ CA	1 MA 1 CA 1 MA 1 CA	4	F L1
1.1.3	$\%\ increase = \frac{(R112.96 - R110.37)}{R110.37}$ ✔ SF(from 1.1.2) = 2.35% ✔ CA	1SF 1CA NPR	2	F L2
1.1.4	INFLATION ✔ ✔ A	2A	2	F L1

1.2.1	Cost = R3.85 X 55 Km X 2 ✔ MA X 5 ✔ MA = R2 117.50 ✔ CA	1MA 1MA 1CA AO	3	F L2
1.2.2	Cost = R125 X 2 X 5 ✔ MA = R1 250 ✔ CA	1 MA 1 CA AO	2	F L1
1.3.1	17 19 21 23 25 26 26 27 28 29 ✔ ✔ A	2 A	2	DH L1
1.3.2	7 ✔ ✔ A	2 A	2	DH L1
1.3.3	Mode refers to the temperature that appears the most frequently. ✔ ✔ R	2 R (1 mark if not in context)	2	DH L2
QUESTION 2				
2.1.1	30 + 31 + 28 = 89 ✔ A 13 statements ✔ RT	1A 1RT	2	F L1
2.1.2	(3 x R12.50) + R5.25 + R13.10 + R9.15 ✔ RT = R65 ✔ A	1RT 1A	2	F L1
2.1.3	R5.60 + R6.55 + R 6.55 + R14 ✔ MA = R32.70 ✔ CA	1MA adding correct values 1CA	2	F L1
2.1.4	R12.50 + R5.25 + R12.50 + R13.10 + R19.60 + R12.50 + R12.50 + R9.15 + R7 ✔ MA = R91.60 ✔ CA Vat = R91.60 × $\frac{15}{115}$ ✔ M = R11.95 OR Price excl vat = $R91.60 \div 1.15$ = R79.65 Vat = R91.60 – R79.65 = R11.95	1MA 1CA 1M	3	F L3
2.1.5	$R3.95 = \left(R1.30 \times \frac{600}{100}\right) = R11.75$ $R3.95 = \left(R1.30 \times \frac{600}{100}\right) = R11.75$ } ✔ A $R0.70 \times 9 = R6.30$ ✔ A $R1.65 \times 25 = R41.25$ ✔ A Total = R11.75 + R 11.75 + R6.30 + R41.25 = R71.05 ✔ CA	3A 1CA	4	F L3

GOOD DAY

DUE TO INTERPRETATION OF QUESTION 2.1.5. (GRADE 11 PAPER 1), PLEASE ACCEPT THE FOLLOWING ANSWER.

2.1.5.

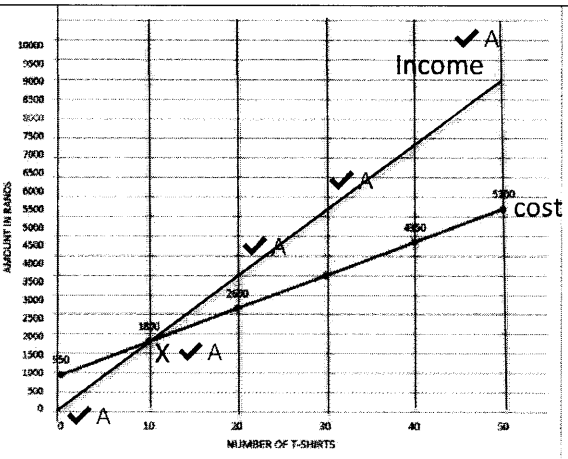
(R1,30 x $\frac{600}{100}$)=R 7,80✓

R0,70 x 9 =R 6,30✓

R1,65 x 25 =R41,25✓

Total= R7,80+R6,30+R41,25

=R55,35✓

2.2.1	UNEMPLOYMENT INSURANCE FUND ✔ ✔A	2A	2	F L1
2.2.2	$R2800 \div 5\%$ ✔ MA $= R56\,000$ ✔A His claim is correct. ✔J Or $R56\,000 \times 5\%$ ✔ MA $= R2\,800$ ✔A His claim is correct. ✔J	1MA 1A 1J	3	F L4
QUESTION 3				
3.1	I = R180 ✔ ✔ A x Number of T-Shirts	2A	2	F L1
3.2	A = R180 x 10 ✔ MA =R1 800 ✔ CA B = R950 + (30 x R85) ✔ MA = R3 500 ✔ CA C = R50 x R180 ✔ MA = R9 000 ✔ CA	3MA 3CA	6	F L2
3.3		1A Start 0 1A two other correct points 1 CA Joining points 1A Label income line 1CA Label break-even point with letter X	5	F L3
3.4	Break-Even is when the income from sale of Sports T-Shirts and the cost of the Sports T-Shirts are equal. ✔ ✔E	2E Penalise 1 if not defined in context	2	F L2
3.5	P = I – E P = (45 x R180) – [R950 + (45 x R85)] ✔M = R8 100 ✔A + R4 775 ✔A = R3 325 ✔CA He is CORRECT. R3325 > R3 000 ✔j	1M 1A 1A 1CA 1J	5	F L4
QUESTION 4				
4.1	To encourage people to save water. To help the poor since water is a basic necessity. ✔ ✔E	2E (ANY ONE)	2	F L2

4.2	Step 2 ✔ ✔ A	2A	2	F L2
4.3	The more water you use, the more you will pay. ✔ ✔ E	2E		F L2
4.4	Cost excl vat = (6 x R0) + (4.5 x R15.98) + (9.5 x R18.75) + (15 x R21.24) + (3 x R24.78) ✔ MA = R0 + R71.91 + R178.13 + R318.60 + R74.34 = R642.98 ✔ CA Cost incl vat = R642.98 x 1.15 ✔ MCA = R739.43 ✔ CA His uncle was INCORRECT ✔ J	1MA 1CA 1MCA 1CA 1J	5	F L4
4.5	Collect rain water (Jo-Jo tanks) ✔ E Repair leaks ✔ E	2E (ANY 2)	2	F L2
4.6	Price excl VAT = $R409.67 \times \frac{100}{115}$ ✔ MA = R356.23 ✔ A R356.23 – R71.91 – R178.13 ✔ MCA = R106.19 ✔ CA No, of kl $R106.19 \div R21.24$ ✔ M = 4.9995 kl = 5kl ✔ CA Total kl used = 6 + 4.5 + 9.5 + 5 = 25 kl ✔ CA	1MA 1A 1MCA 1CA 1M 1CA 1CA	7	F L3
QUESTION 5				
5.1	Discrete ✔ A Data are all whole numbers, no decimal points. ✔ J	1A 1J	2	DH L2
5.2	MEAN 11B = $\frac{SUM\ OF\ SCORES}{NUMBER\ OF\ SCORES}$ = $\frac{496}{11}$ ✔ MA = 45.09 ✔ CA	1MA 1CA denominator must be correct	2	DH L1

5.3	MEAN = $\frac{SUM\ OF\ SCORES}{NUMBER\ OF\ SCORES}$ 62√ = $\frac{A+530}{10}$ ✔MA A+530 = 620 ✔CA A = 90 ✔CA	1MA 1CA 1CA	3	DH L3
5.4	90 75 69 68 68 62 53 53 42 40 ✔A Median = $\frac{(68+62)}{2}$ ✔M = 65 ✔CA	1A arrangement 1M concept of average 1CA	3	DH L2
5.5	68 ✔✔A	2A	2	DH L1
5.6	11C ✔O HIGHER MEDIAN THAN 11 HIGHEST MARK OF 90 ALL LEARNERS PASSED AVERAGE MARK IN 11C IS HIGHER ✔✔J (ANY 2 REASONS)	1O 2J (ANY 2)	3	DH L4
5.7	$\frac{8}{21}$ ✔A × 100 = 38.1% ✔CA CORRECT ✔J	1A 1CA denominator must be correct 1J	3	DH L4
5.8	P (>50) = $\frac{4}{11}$ ✔A × 100 ✔M = 36.36% ✔CA	1A 1M % concept 1CA denominator must be correct	3	PROB L1

MATHEMATICAL LITERACY
TAXONOMY LEVELS

TASK: November Paper 1 - 2022 GRADE: 11

QUESTION	MARK	TOPICS								
		FINANCE	MEASUREMENT	MAPS AND PLANS	DATA HANDLING	PROBABILITY	LEVEL 1 (KNOWLEDGE)	LEVEL 2 (ROUTINE)	LEVEL 3 (COMPLEX)	LEVEL 4 (PROBLEM SOLVING)
1.1.1	2	2					2			
1.1.2	2	2					2			
1.1.3	2	2						2		
1.1.4	2	2					2			
1.2.1	3	3						3		
1.2.2	4	4					4			
1.3.1	2				2		2			
1.3.2	2				2		2			
1.3.3	2				2			2		
2.1.1	2	2					2			
2.1.2	2	2					2			
2.1.3	2	2					2			
2.1.4	3	3							3	
2.1.5	4	4							4	
2.2.1	2	2					2			
2.2.2	3	3								3
3.1	2	2					2			
3.2	6	6						6		
3.3	5	5							5	
3.4	2	2						2		
3.5	5	5								5
4.1	2	2						2		
4.2	2	2						2		
4.3	2	2						2		
4.4	5	5								5
4.5	2	2						2		
4.6	7	7							7	
5.1	2				2			2		
5.2	2				2		2			
5.3	3				3				3	
5.4	3				3			3		
5.5	2				2		2			
5.6	3				3					3
5.7	3				3					3
5.8	3			3			3			
TOTAL MARKS	100	73		3	24		31	28	22	19
CAPS WEIGHTING							30%	30%	20%	20%
% WEIGHTING		73%		3%	24%		31%	28%	22%	19%