education

Lefapha la Thuto la Bokone Bophirima
Noordwes Departement van Onderwys
North West Department of Education
NORTH WEST PROVINCE

NATIONAL
SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

SEPTEMBER 2021

MARKS: 150

TIME: 3 hours

NEMLITP1

This question paper consists of 11 pages, an addendum with 3 annexures and one answer sheet.

INSTRUCTIONS AND INFORMATION

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

2.   2.1   Use the ANNEXURES in the ADDENDUM for the following questions:

          ANNEXURE A for QUESTION 1.2
          ANNEXURE B for QUESTION 4.2
          ANNEXURE C for QUESTION 4.3

       2.2   Answer Question 4.1.1 on the attached ANSWER SHEET.

       2.3   Write your name in the space on the ANSWER SHEET. Hand in the ANSWER SHEET with your ANSWER BOOK.

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.

QUESTION 1

1.1 | Anita and Yolandi produced clothing until the Covid-19 pandemic hit the world. They adapted their business ("*Made By Us*") to making masks.

Made By Us needed the following materials to produce masks. For every mask they need a double layer material and one lining in between. The masks are sold for R35 per mask.

TABLE 1: COST PER MASK

	COST PER METER	CAN MAKE	COST PER MASK
Material	A	9 masks	R5,00
Elastic	R4	4 masks	R1,00
Lining	R12	B	R0,50
Toll of tread	R10 per toll	40	R0,25
Printing			R8,00
TOTAL COST PER MASK			C
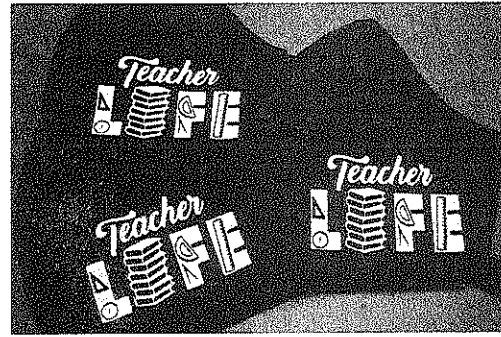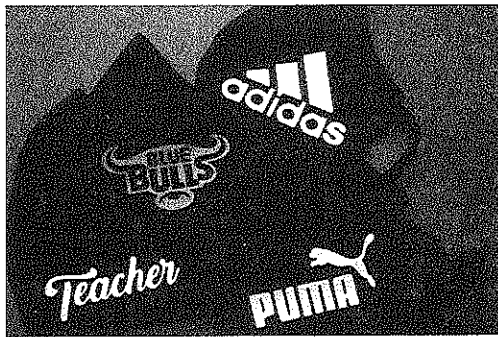
Use the information above to answer the questions that follow.

1.1.1   Calculate the cost per meter (**A**), for the material needed.   (2)

1.1.2   How many masks (**B**) can be made from 1 m of lining?   (2)

1.1.3   Calculate the total cost per mask (**C**).   (2)

1.1.4   *Made By Us* received an order from one of the local schools for 580 masks. Calculate the total amount the school must pay for the order.   (3)

1.1.5   Due to the large order from the local school, *Made By Us* gave a 15% discount on the order. Calculate the new total amount for the order after discount.   (3)

1.1.6   Determine how many meters of material they need to buy to produce 580 masks.

(2)

1.1.7   Calculate the profit taking discount into account on the school order
of 580 masks from *"Made By Us"* company.   (3)

1.2   ANNEXURE A represents the COVID-19 statistics in South Africa for the 10 days from
20 June 2020 until 29 June 2020.

Study the table on ANNEXURE A and answer the questions that follow.

1.2.1   Arrange the total recoveries in descending order.   (2)

1.2.2   Which province had the highest total deaths?   (2)

1.2.3   Determine the difference between Gauteng and Mpumalanga of the
total new cases.   (3)

1.2.4   Calculate the total deaths for 20 June 2020 to 29 June 2020.   (2)

1.2.5   Determine the percentage recoveries of Western Cape.   (2)

1.2.6   Write down the net results for KZN in terms of active cases.   (2)
                                                                          [30]

QUESTION 2

2.1 | Rafael Nadal raises a mammoth amount of €14 million for coronavirus victims in Spain which was equivalent to R292 318 460 in South Africa.
PPE – Personal protective equipment
Use the table below and answer the questions that follow.

TABLE 3: CURRENCY EXCHANGE TABLE

| 1$ (US dollar)	R17,76459
1€ (Euro)	R20,87989
1¥ (Yen)	R0,16719
1¥ (Yen)	0,0080 € (Euro)

[Adapted from www.countries of the world.com]

Use the information above to answer the questions that follow.

2.1.1   Determine which currency is the weakest according to the table?   (2)

2.1.2   Write down R292 318 460 in words.   (2)

2.1.3   Explain why there are more than two digits after the decimal comma.   (2)

2.1.4   Rafael Nadal request that the donation money be used for PPE's, to staff payment, purchase ventilators in the ratio **1:2:4,** respectively. Determine the amount in rand that needs to be spent on ventilators in Spain.
  (3)

2.2 | The hospital financial team enquired about ventilators in 2021 to be purchase out of the amount sponsored. The costs for the SH330 Ventilator are listed below.

Cost in US dollars = $ 10 000 (USA)

Cost in Euro = € 8 583,59 (Italy)

Cost in Yen = ¥ 1 065 847,24 (Japan)
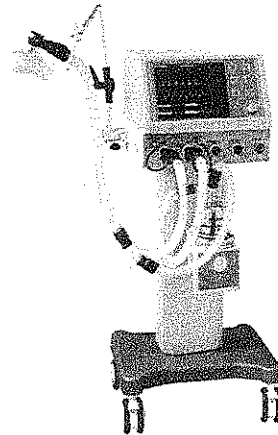
Use TABLE 3 in 2.1 and the information above to answer questions that follow.

2.2.1   The financial team stated that the SH330 ventilator from Japan will be the cheapest. Verify showing ALL calculations if the statement is correct. Give reason for your answer.   (8)

2.2.2   The price increase yearly with a compound annual growth of 9,63% in 2021 in Italy. Calculate the new price in euro of the SH330 ventilator for 2023. Show all calculations.   (4)

2.3   *Carpe Diem High School* compared the income from school fees over the past two years. The school fee per learner is R16 580 per year. The amount is paid in 10 even monthly payments throughout the year. The first two months must be paid in full before school reopens for the year.

TABLE 4: INCOME FROM SCHOOL FEES FOR 2020 AND 2019

Month	2020		2019	
	No of learners enrolled per month	Amount received per month	No of learners enrolled per month	Amount received per month
January	736	R 1 220 288	725	R 1 202 050
February	736	R 1 220 288	726	R 1 203 708
March	734	R 1 192 632	730	R 1 198 236
April	733	R 1 178 854	730	R 1 186 133
May	730	R 1 137 719	730	R 1 186 133
June	724	R 1 128 368	729	R 1 172 421
July	721	R 1 061 531	733	R 1 191 007
August	723	R 1 102 835	733	R 1 191 007
September	722	R 1 137 222	734	R 1 204 802
October	716	R 1 127 771	736	R 1 208 085
TOTAL PER ANNUM	7275	R 11 507 508	7306	R 11 943 582

Use the table above and answer the following questions.

2.3.1   Determine the total amount received for January, February and March in 2019.   (3)

2.3.2   Show how the amount received for January 2020 was determined if all the learners' school fees were paid in full.   (3)

2.3.3   Determine the percentage difference between the actual total income for 2019 and 2020.
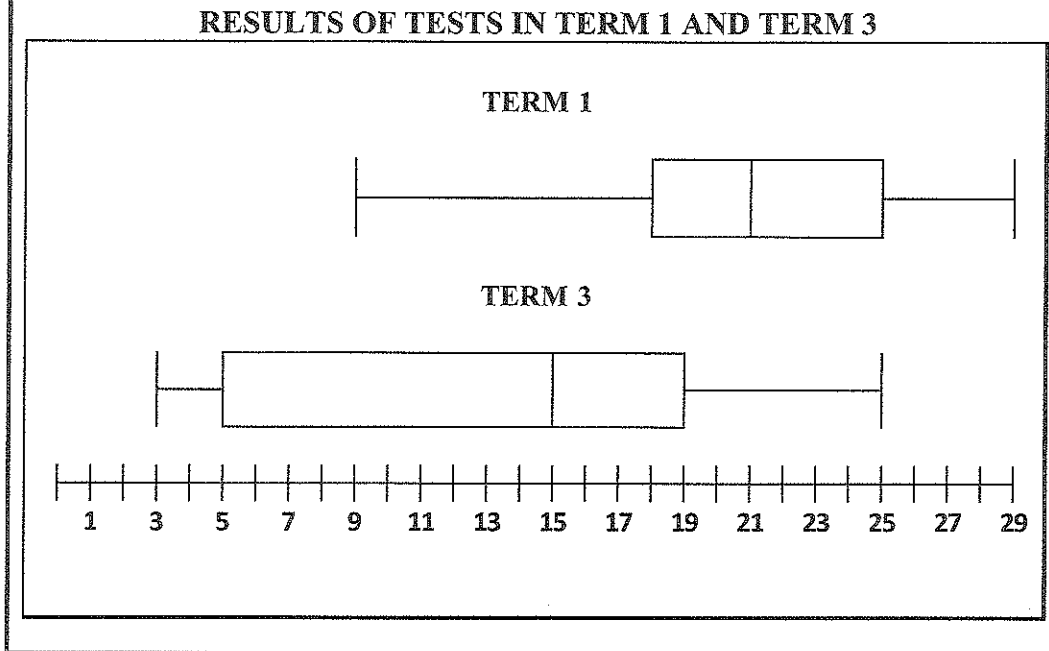
You may use the following formula:

$$\% \text{ difference} = \frac{2020 \text{ income} - 2019 \text{ income}}{2019 \text{ income}} \times 100\%$$

  (3)

2.3.4   Determine the difference between the total income expected and the actual amount received at the end of the financial year in 2020.   (4)

2.3.5   The principal predicted that the school received 13% less school fees than what was expected for July 2020. Verify, showing ALL calculations if the prediction was correct.   (6)

2.3.6   Explain the trend of the number of learners enrolled in 2020. Give ONE reason for the impact observed in both years.   (4)

[44]

QUESTION 3

3.1 | The Grade 12 learners wrote a test in term 1 2020 before the pandemic and term 3 2020 during the pandemic. The marks were represented on a box and whisker plot. Study the graphs below and answer the following questions. The total mark for each test was 30 marks.

RESULTS OF TESTS IN TERM 1 AND TERM 3

TERM 1

TERM 3

| 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 |

3.1.1   Explain the term *outlier* and state the biggest outlier of the two sets of data.   (4)

3.1.2   Determine which test had the largest interquartile range between the test in term 1 and the test in term 3. Show all calculations.   (6)

3.1.3   Explain the impact the pandemic had on the results of the two sets of data and use the measure of central tendency to justify your answer.   (4)

3.2 The following temperatures were taken from learners at *Carpe Diem High School* during their screening. Learners with high temperatures were kept in isolation.

TABLE 5: RECORD OF LEARNER'S TEMPERATURES (In °C)

Grade	Gender	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Average Temperature
8A	M	36,4	37,2	37,4	38,8	38,3	37,7	36,9	37,53
8B	M	38	38,3	A	38,7	38,2	37,3	36,4	38
9A	M	36,9	37,3	38,1	38,1	37,3	37,1	36,5	37,33
9B	M	37	37,6	38,4	37,8	37,2	36,7	36,2	37,27
10A	M	37,2	37,5	B	38,9	38,6	B	37,1	37,87
10B	F	36,8	37,9	38,4	38,9	41,2	~	~	~
11A	F	37,5	37,7	38,3	38	37,5	36	35,4	37,2
11B	F	36,9	37,8	38,4	37,1	36,3	36,1	~	~
12A	F	36,4	38	38,2	38,9	38,6	38,1	37,9	38,01

Use the information above to answer the following questions.

3.2.1 Write down the lowest recorded temperature on day 7. (2)

3.2.2 Explain the term *Mode*. (2)

3.2.3 Determine the mode temperature on day 1. (2)

3.2.4 Determine the median temperature of the learner in 11A from day 1 up to day 7 (excluding the average temperature). (2)

3.2.5 The range of the temperatures of the learner in 8B is 2,7. If the value A is the maximum value, determine the value A. Show all calculations. (3)

3.2.6 The average temperature of the learner in 10A is 37,87. Calculate the value B. Round your answer to one decimal place. Show all calculations. (5)

3.2.7 Explain why there are fewer records of temperatures of the learner in 10B. (2)

3.2.8 Determine the probability of randomly selecting a learner with a temperature of 38,9 degrees on day 4. Write your answer as a fraction in its simplest form. (2)

3.2.9 Determine the probability of randomly selecting the recorded temperature in 12A which is above 38°C. Write your answer as a percentage, rounded to the nearest whole number. (3)

3.2.10 Explain why a person would rather express a probability as a percentage or a fraction, than a decimal in the situation stated above. (2)

[39]

QUESTION 4

4.1 | The following table represents the percentages of Budgeting guidelines for the cost of living.

TABLE 6: BUDGETING GUIDELINES FOR THE COST OF LIVING

COST OF LIVING	PERCENTAGES
Transportation	16.5
Food	14
Housing	35
Dept payments	10
Personal and discretionary	6
Savings	6.5
Utilities	5
Medical	3
Outing	4
TOTAL	**100**

[Source: www.myMoneyCoach.ca]

Use the frequency table above to answer the following questions.

4.1.1 Represent the data on a Histogram on the answer sheet provided. (6)

4.1.2 Mr Tiffen pays R9 782,50 towards housing. Determine his salary per month if he pays the housing as per guidelines. (3)

4.2 ANNEXURE B contains monthly salaries of the 15 highest paying jobs in South Africa. Study ANNEXURE B to answer the following questions.

4.2.1 Write down the occupation that earns the highest maximum salary in the intermediate range, as well as the salary value of the occupation. (2)

4.2.2 Determine the minimum salary of a Senior Building Foreman per month. (2)

4.2.3 Determine the difference between the maximum salary of a Chartered accountant and the Senior Financial manager. (3)

4.2.4 A Technical Business architect in the intermediate range earns a maximum annual salary of R495 700. Verify with calculations if his statement is correct. (3)

4.3   Mrs Geere a 54-year-old Structural engineer earns a monthly salary of R78 264. She pays Medical Aid for her husband, herself and their 3 children. She receives 7,5% credit for pension fund.

Use ANNEXURE C to answer the following questions.

4.3.1	Determine Mrs Geere's annual salary.	(2)
4.3.2	Write down the tax bracket in which Mrs Geere's annual salary falls.	(2)
4.3.3	What does the abbreviation SARS stand for?	(2)
4.3.4	Determine the annual medical tax credit for Mrs Geere and her family for 2020.	(4)
4.3.5	If Mrs Geere receives an increase of 8% on her monthly salary, then calculate how much will she have to pay towards monthly Pay as You Earn (PAYE) after the increase.	
	Show all calculations.	(8)

[37]

TOTAL: 150

education

Lefapha la Thuto la Bokone Bophirima
Noordwes Departement van Onderwys
North West Department of Education
NORTH WEST PROVINCE

NATIONAL
SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P1

ADDENDUM

SEPTEMBER 2021

This addendum consists of 4 pages.

ANNEXURE A

QUESTION 1.2

COVID - 19 STATISTICS IN SOUTH AFRICA

Stats for the last 10 days (20 June 2020 - 29 June 2020)

TABLE 2: Table arranged according to number of new cases

No	PROVINCE	New cases TOTAL	%	Deaths TOTAL	%	Recoveries TOTAL	%	Net results (In terms of active cases)
1	Gauteng	22 580	39.89	66	9.47	5 737	24.65	Active cases increased by 16 777
2	Eastern Cape	12 689	22.42	140	20.09	6 493	27.90	Active cases increased by 6056
3	Western Cape	12 669	22.38	444	63.7	9 053	B	Active cases increased by 3 172
4	KZN	4 493	7.94	35	5.02	1 075	4.62	Active cases increased by 3 383
5	North West	2 173	3.84	2	0.29	258	1.11	Active cases increased by 1 913
6	Free State	719	1.27	2	0.29	150	0.64	Active cases increased by 567
7	Mpumalanga	584	1.03	2	0.29	220	0.95	Active cases increased by 362
8	Limpopo	506	0.89	6	0.86	198	0.85	Active cases increased by 302
9	Northern Cape	186	0.33	0	0	89	0.38	Active cases increased by 97
	TOTAL	56 599	100	A	100	23 273	100	Active cases increased by 32 629

[Source: Adapted from NCID, Department of Health and Provincial Departments]

ANNEXURE B

QUESTION 4.2

TABLE5: MONTHLY SALARIES FOR THE 15 TOP HIGHEST PAYING OCCUPATIONS IN SOUTH AFRICA

OCCUPATION	RANGE			
	INTERMEDIATE		SENIOR	
	Minimum	Maximum	Minimum	Maximum
Financial Management	R 58 557	R 69 185	R 66 956	R 79 002
Structural Engineering	R 30 917	R 41 778	R 55 072	R 78 264
Plant Management	R 51 891	R 70 286	R 57 051	R 72 583
Civil Engineering	R 32 388	R 43 902	R 53 994	R 70 826
Corporate Lending	R 36 759	R 51 354	R 56 218	R 70 218
IT Management	R 48 059	R 58 371	R 55 718	R 66 141
Mechanical Engineering	R 35 516	R 45 471	R 44 642	R 59 587
Financial Analysis	R 45 908	R 52 506	R 50 587	R 59 110
Industrial Engineering	R 34 763	R 43 624	R 44 143	R 57 573
Marketing Management	R 42 729	R 52 917	R 45 267	R 56 275
Technical & Business Architecture	R 40 485	R 48 897	R 46 939	R 56 160
Electronic Engineering	R 37 552	R 52 969	R 40 833	R 54 861
Building Foreman	R 27 093	R 34 667	R 39 286	R 54 792
Chartered Accountant	R 44 359	R 51 438	R 47 248	R 54 435
Software Development	R 36 374	R 44 306	R 42 118	R 53 782

[Source: *businesstech.co.za*]

ANNEXURE C

QUESTION 4.3

**INCOME TAX: INDIVIDUALS AND TRUSTS FOR 1 MARCH 2019 –
29 FEBRUARY 2020**

2020 ~ INDIVIDUALS

Tax Bracket	Taxable Income (in Rand)	Rate of Tax (in Rand)
1	0 – 195 850	18% of taxable income
2	195 851 – 305 850	35 253 + 26% of taxable income above 195 850
3	305 851 – 423 300	63 853 + 31% of taxable income above 305 850
4	423 301 – 555 600	100 263 + 36% of taxable income above 423 300
5	555 601 – 708 310	147 891 + 39% of taxable income above 555 600
6	708 311 – 1 500 000	207 448 + 41% of taxable income above 708 310
7	1 500 001 and above	532 041 + 45% of taxable income above 1 500 000

Tax rebate type	2020
Primary	R14 220
Secondary (Age 65 to below 75)	R7 794
Tertiary (Age 75 and older)	R2 601

Tax thresholds	2020
Below age 65	R79 000
Age 65 to below 75	R122 300
Age 75 and older	R136 750

Medical Aid ~ monthly tax credits	2020
Main member	R310
First dependant	R310
Second dependant	R209
Third dependant	R209

[Source: *Adapted from SARS pocket tax guide 2020*]

ANSWER SHEET   QUESTION 4.1.1

NAME: _____   GRADE:_____

BUDGETING GUIDELINES FOR THE COST OF LIVING