Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2020

MATHEMATICAL LITERACY P1

MARKS: **150**

TIME: **3 hours**

This question paper consists of 15 pages, including 1 answer sheet and an addendum with 1 annexure.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

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

2. 2.1 Use the ANSWER SHEET to answer QUESTION 5.3.2.

   2.2 Write your NAME and GRADE in the spaces provided on the ANSWER SHEET FOR QUESTION 5.3.2
   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. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.

5. Round off ALL final answers according to the context used, unless stated otherwise.

6. Indicate units of measurement, where applicable.

7. Start EACH question on a NEW page.

8. Show ALL calculations clearly.

9. Write neatly and legibly.

QUESTION 1

1.1 A bus left Queenstown at 20:15 on a Saturday evening to Cape Town. The bus stopped 8 times along the journey and each stop lasted 30 minutes for passengers to refresh. The total time for the journey was 13 hours 45 minutes.

Use the above information to answer the questions that follow.

1.1.1 Calculate the total stopping time in minutes the passengers spent on refreshing. (2)

1.1.2 Determine the time the bus arrived in Cape Town. (2)

1.2 A shopkeeper sold 10 shirts for a total R1 200 gaining a profit of 25% from the sale.

1.2.1 Explain the meaning of '*profit*' in this context. (2)

1.2.2 Calculate the profit made on the sale of 10 shirts. (3)

1.3 An educator drove 383,5 km from Komani to Port Elizabeth. The car used 28,239 litres of petrol at a cost of R434, 61.

1.3.1 Calculate the petrol price per litre. (2)

1.3.2 Determine the average distance travelled per litre. (2)

1.3.3 Calculate the cost in Rand per kilometre travelled. (2)

1.3.4 Determine the litres of fuel required for a distance of 175 km at the same rate of consumption. (3)

1.3.5 Calculate the distance a car would travel with petrol of R675,55 at the same rate of consumption. (2)

1.4 On a map the scale is shown as 50 cm : 100 km. Use this information to answer the questions that follow.

1.4.1 Write down the given scale in words. (2)

1.4.2 Express the given scale in the form of 1 **:** … (3)

1.5 TABLE 1 below shows the total population of South Africa and the World from 2017 to 2020.

TABLE 1: **TOTAL POPULATION OF SOUTH AFRICA AND WORLD FROM 2017 TO 2020**

Year	Urban population of South Africa	South Africa	World population
2020	39 550 889	59 308 690	7 794 798 739
2019	38 820 239	58 558 270	7 713 468 100
2018	38 086 769	57 792 518	7 631 091 040
2017	37 348 154	57 009 756	7 547 858 925

Use TABLE 1 above to answer the questions that follow.

1.5.1 Write down the year with the lowest world population. (2)

1.5.2 Calculate the total urban population of South Africa from 2018 to 2020. (2)

1.5.3 Calculate the difference between the maximum and minimum of the world population. (3)

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QUESTION 2

2.1 Mr Tau plans to renovate his house at a cost of R25 000. He approached his bank for a personal loan. He was provided with a personal loan repayment plan as shown in TABLE 2 below.

TABLE 2: PERSONAL LOAN REPAYMENT

Loan amount	Monthly payment for different periods with interest rate of 9,75% per annum					
	6 months	12 months	24 months	36 months	48 months	60 months
R10 000	R2 017,83	R1 067,07	R592,24	R434,47	R355,95	R309,13
R20 000	R3 746,15	R1 952,20	R1 056,28	R758,58	R610,43	R522,09
R30 000	R5 474,46	R2 837,33	R1 520,32	R1 062,69	R864,90	R735,05

NOTE:

- Initial administration at R1 207,50
- Monthly administration at R69

[Source: www.nedbank.co.za/loans]

Use TABLE 2 above to answer the questions that follow.

2.1.1 Determine how much of his own funds Mr Tau will have to use to renovate the house, if he takes a personal loan of R10 000,00. (2)

2.1.2 Mr Tau eventually decides to take a personal loan of R10 000 repayable over 4 years.

Determine:

(a) The initial administration fee as a percentage of the loan amount (3)

(b) The total monthly amount that he will have to pay for this loan (2)

(c) The total interest that he will pay for his loan (4)

2.1.3 Mr Tau paid his first instalment at the end of March 2020. The monthly instalments are payable at the end of each month. Determine the month and year when Mr Tau will pay his last payment. (2)

2.1.4 Mr Tau received a contribution of 250 Canadian Dollars (CAD) from his son who works in Canada.

Calculate the value of the contribution in Rand if the exchange rate at the time, was 1 CAD = R11,0555. (3)

2.2 TABLE 3 shows South Africa's inflation rates from June 2017 to June 2019.

TABLE 3: SOUTH AFRICA'S INFLATION RATES

YEAR	INFLATION RATE
2017	5,27%
2018	4,62%
2019	4,38%

Use TABLE 3 above to answer the questions that follow.

2.2.1 Explain the meaning of the term '*inflation*'. (2)

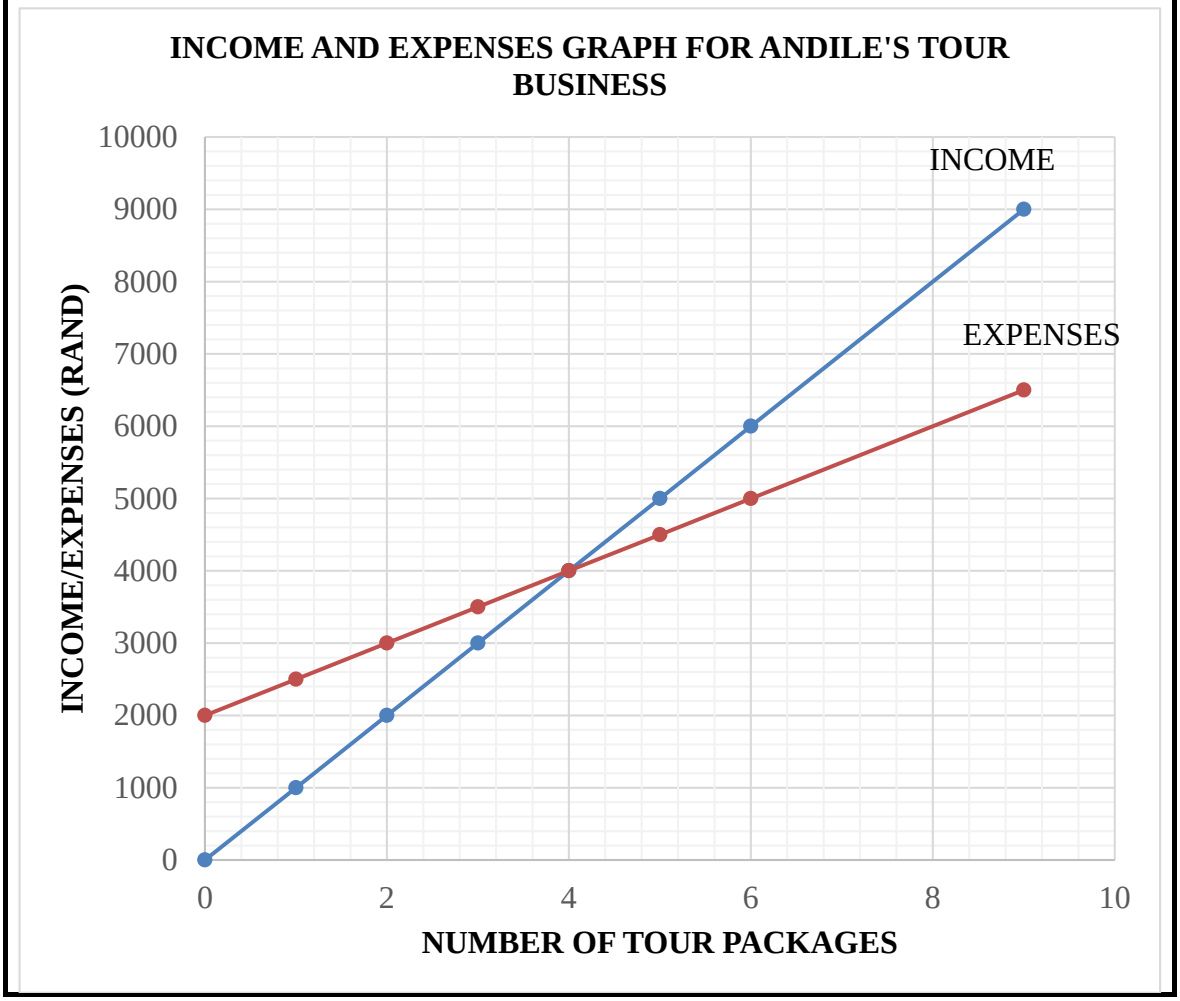
2.2.2 Calculate the price of brown bread in June 2019 if the price was R12,24 in June 2017. (4)

2.3 Andile runs a travel agency and deals in tour packages. A Mathematical Literacy student drew an Income and Expense graph shown below to help Andile determine the break-even point for his business.

The formulae used for Expenses and Income are also shown below.

The cost price of tour packages has an equation**:**
Expenses = 2 000 + 500 × number of tour packages

The income from the tour packages has an equation:
Income = 1 000 × number of tour packages



Use the graph and information above to answer the questions below.

2.3.1 Determine the number of tour packages at the break-even point. (2)

2.3.2 Determine the income if 8 tour packages are sold. (3)

2.3.3 Income received is VAT (Value Added Tax) exclusive. Determine the VAT amount payable if 6 tour packages are sold. Use **VAT = 15%**. (3)

2.3.4 Use your answer in QUESTION 2.2.3 to calculate the profit made from the 6 tour packages sold.

Use the formula: **Profit = Income – Expenses – VAT payable** (3)

2.3.5 Determine the number of tour packages that were sold if the expenses are R1 500 more than the income. (2)

2.4 John works for a company that makes bricks. He is paid a gross salary of R12 500 per month. John and his employer contribute 1% each towards UIF every month.

2.4.1 What does the acronym '*UIF*' stands for? (2)

2.4.2 Calculate the total UIF contribution by both employee and employer for the period of one year. (3)

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QUESTION 3

3.1 Lethabo baked malva pudding for his family and friends every Sunday for the first quarter of 2020. Study the ingredients below and answer the questions that follow.

MALVA PUDDING RECIPE

Serves : 6 people	
Cooking time : 55 minutes	
Preparation time : 20 minutes	
Ingredients	**Quantity**
1. Unsalted butter, cold and cut into small cubes	230 g
2. White sugar, smooth apricot jam for brushing	450 g
3. Flour	250 g
4. Milk	500 mℓ
5. Free range egg yolks	4
6. Tablespoon baking soda	2
7. Salt	Pinch
8. Boiling water (for mix)	1 cup
9. Vanilla extract	Few drops
Preheat oven to 180 °C and use a greased 20 cm square baking dish.	
You may use the following: **1 teaspoon = 5 mℓ** **1 pinch = $\frac{1}{8}$ × teaspoon**	

[Source: www.woolworths.co.za]

3.1.1 Calculate the amount of salt used to bake malva pudding for three dozen of people. (4)

3.1.2 Calculate, in hours, the amount of time spent by Lethabo to prepare and cook the malva pudding for his family and friends in the first quarter of the year. (4)

3.1.3 Determine the amount of flour (in kilogram) Lethabo will use to bake malva pudding for 64 Grade 12 learners for a matric dance. (5)

3.1.4 Convert temperature of the pre-heated oven to degrees Fahrenheit (°F).

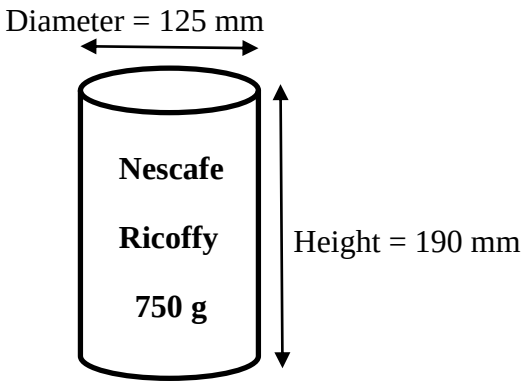
You may use the following formula:

$$°F = \left(\frac{9}{5} \times °C\right) + 32$$

(3)

3.2 Lethabo bought a 750 g tin of Nescafe Ricoffy for his family during lockdown. Study the diagram below and answer the questions that follow.

DIAGRAM OF A NESCAFE RICOFFY CYLINDRICAL TIN



3.2.1 Write down the dimension of the radius. (2)

3.2.2 Explain the meaning of the term '*volume'*. (2)

3.2.3 Calculate the volume (in cm^3) of the cylindrical Nescafe Ricoffy coffee tin.

You may use the following formula:
Volume = π × radius × radius × height, where $\pi = 3{,}142$ (3)
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QUESTION 4

4.1 ANNEXURE A shows a floor plan of the Victoria Wharf Shopping Centre in Cape Town that Anathi visited in June 2020.

Use the floor plan in ANNEXURE A and answer the questions that follow.

4.1.1 Write down the number of entrances that can be found on the lower level of the shopping centre. (2)

4.1.2 Determine how many shops can be found in the shopping centre. (2)

4.1.3 Determine the probability of randomly selecting a shop where an even number was used to label the shop. Give your final answer to the nearest percentage. (4)

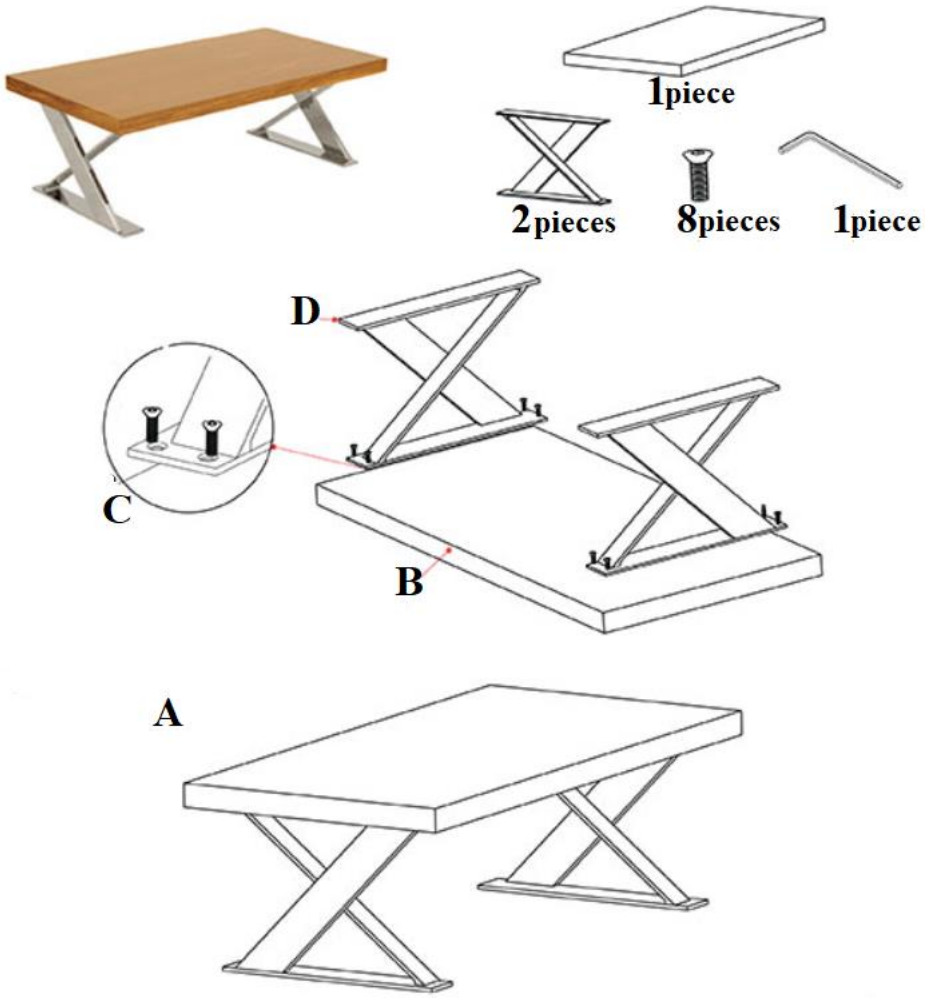
4.1.4 From Woolworths, Anathi turned right, skipped three shops on her right and entered the next shop. Write the number of the shop that she entered. (2)

4.1.5 Give the general direction of MRP from Clicks. (2)

4.1.6 Name the shop that occupies the largest area. (2)

4.1.7 Identify the entrance number where there will be no shops on your right-hand side as you enter the shopping centre. (2)

4.2 The diagrams below show the pieces that can be assembled to make a table that Anathi bought.



[Source: woodworkpdfplans.webfc2.com]

Study the diagram above and answer the questions that follow.

4.2.1 Determine the number of pieces needed to assemble this table. (2)

4.2.2 Arrange the given steps (using **A** to **D**) to show Anathi how this table can be assembled. (4)

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QUESTION 5

5.1 The recorded number of learners, the number of schools and the number of educators in all districts of the Eastern Cape Department of Education for the year 2020 are shown below:

DISTRICT	NUMBER OF LEARNERS	NUMBER OF SCHOOLS	NUMBER OF EDUCATORS
Alfred Nzo East	105 817	225	3 155
Alfred Nzo West	168 899	599	5 019
Amathole East	154 464	733	4 585
Amathole West	78 820	411	2498
Buffalo City	198 738	459	5 537
Chris Hani East	111 506	489	3 545
Chris Hani West	119 405	398	3 469
Joe Gqabi	94 876	327	2 876
Nelson Mandela Metro	244 357	363	6 664
OR Tambo Coastal	260 817	647	7 520
OR Tambo Inland	201 907	619	5 736
Sarah Baartman	98 701	254	2 637

[Adapted from ECDoE supplied dataset]

Use the information above to answer the questions that follow.

5.1.1 Write down the total number of schools to the nearest thousand. (2)

5.1.2 Calculate the mean number of learners from all the districts. (3)

5.1.3 Calculate the average number of learners that an educator is responsible for in the Joe Gqabi District. (3)

5.1.4 Identify the district with the most schools. (2)

5.1.5 Calculate the range number of educators in the districts. (3)

5.1.6 Arrange the number of schools in descending order. (2)

5.1.7 Determine the number of male educators if 71,9% of educators are female. (4)

5.1.8 Determine the probability (in simplified form) of randomly selecting a school in the Eastern Cape that is from the OR Tambo Districts. (3)

5.2 The Mathematical Literacy diagnostic report of 2019 on the overall achievement rates in Mathematical Literacy results from 2017 to 2019 are shown in TABLE 4 below.

TABLE 4: OVERALL ACHIEVEMENT RATES IN MATHEMATICAL LITERACY FROM 2017 TO 2019

Year	Number wrote	Number achieved at 30% and above	% achieved at 30% and above	Number achieved at 40% and above	% achieved at 40% and above
2017	313 030	231 230	73,9	140 991	45,0
2018	294 204	213 225	**P**	133 568	45,4
2019	298 607	240 816	80,6	162 877	54,5

[Adapted from DBE supplied dataset, 2019]

Use the above information to answer the following questions.

5.2.1 Calculate the value of **P**, the percentage achieved at 30% and above in 2018. (3)

5.2.2 Calculate the difference in percentage (%) of learners who achieved at 40% and above in 2017 and 2019. (3)

5.3 Schools are categorised according to quintiles. Study the information on the number of learners in each quintile that is transported by the Department of Education in the Eastern Cape Province.

Quintiles	Number of learners
Q1	550 684
Q3	738 340
Q4	52 185
Q2	333 251
Q5	80 369

Use the information above and answer the questions that follow.

5.3.1 Write down the median value for the number of learners according to the quintiles. (2)

5.3.2 On ANSWER SHEET 1, draw a bar graph showing the number of learners per arrangement of quintile numbers from 1 to 5. (3)

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TOTAL: 150

ANSWER SHEET

QUESTION 5.3.2

NAME:

GRADE 12: