**Province of the**
# EASTERN CAPE
EDUCATION

## NATIONAL
## SENIOR CERTIFICATE

## GRADE 10

## NOVEMBER 2019

## MATHEMATICAL LITERACY P1

**MARKS:** 75

**TIME:** 1½ hours

*XMLITE1*

This question paper consists of 8 pages.

**INSTRUCTIONS AND INFORMATION**

1.      This question paper consists of FIVE questions.

2.      Answer ALL the questions.

3.      Number the questions correctly according to the numbering system used in this question paper.

4.      Diagrams are NOT necessarily drawn to scale.

5.      Round off ALL the final answers appropriately, 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

The fundraising committee of your school is planning their annual Spring Dance. They decided on a venue that charges R7 500,00 for a function of five hours, with an additional charge of R900,00 per hour, or part thereof. The venue accommodates 120 guests for a three-course meal and dancing.

**NOTE:  The dance starts at 18:30 and ends at 23:55.**

1.1    Identify the value that represents the fixed amount.                                    (2)

1.2    Is the number of guests attending the dance, discrete or continuous data?             (2)

1.3    If 45% of the people attending the dance are males, calculate the number of males at the dance.                                                                        (2)

1.4    The dance starts at 18:30 and ends at 23:55.

    1.4.1    Determine the duration of the dance, in hours and minutes.               (2)

    1.4.2    Hence, calculate the cost of the venue for 120 guests.                    (3)

    1.4.3    Calculate the average amount each guest will pay for the three-course meal and dance.                                                               (2)

1.5    The dance floor is a square in the middle of the room, with a side length of 6 m. Calculate the perimeter of the dance floor.

    **You may use the formula: Perimeter = 4 × side**                                (2)

                                                         **[15]**

MATHEMATICAL LITERACY P1

**QUESTION 2**

2.1 Study TABLE 1 below regarding bank fees at Mega Bank and answer the questions that follow.

**TABLE 1: BANK FEES FOR MEGA BANK ACCOUNT**

| Mega Bank Account Fees | |
|---|---|
| Monthly Account Fee | R65,00 |
| Cellphone banking | R0,00 |
| Cash Withdrawals (Mega Bank ATM) | |
|     First R1 500 | R0,00 |
|     More than R1 500 | R12,00 + R1,20 per R100 (or part thereof) |
| Cash Withdrawals (Other bank ATM) | R15,00 |

2.1.1 What is the monthly fee of having this account? (2)

2.1.2 Ababalwe withdraws R1 700 at a Mega Bank ATM.
Calculate what this withdrawal will cost her. (3)

2.1.3 Ababalwe had to transfer R500 to her mother's account. She decided to use her cellphone banking to do this. How much did this transaction cost her? (2)

2.2 While at the mall, Ababalwe had lunch at a restaurant. Her bill, excluding VAT, was R90,80. Calculate the amount of VAT that will be charged, if VAT is calculated at 15%. (2)

2.3 Ababalwe invests R2 000 into a fixed deposit account, for a period of two years.
The bank offers her simple interest at a rate of 9,5% p.a.
Calculate the value of her investment after two years. (3)

2.4 TABLE 2 below shows a rough statement of Bane's income and expenditure items for a month. Study the table and answer the questions that follow.

**TABLE 2: INCOME AND EXPENDITURE FOR BANE**

| INCOME | AMOUNT | EXPENDITURE | AMOUNT |
|--------|--------|-------------|--------|
| Salary | R11 750 | Groceries | R2 100 |
| | | Rent | --------- |
| | | Petrol | R1 000 |
| | | Car payment | R1 800 |
| | | Electricity | --------- |
| | | Clothing | R450 |
| | | Insurance | R320 |
| | | Entertainment | R600 |

2.4.1 Name ONE variable and ONE fixed expenditure item. (2)

2.4.2 Bane spends a total of R3 700 on electricity and rent combined. If the ratio of electricity to rent is 1 : 4, determine the amount she pays for electricity. (3)

2.4.3 Calculate what percentage Bane's groceries is of her salary. Round your answer off to the nearest percentage. (3)

**[20]**

**QUESTION 3**

Given below is a simple floor plan of a one-bedroom flat. Study the plan and answer the questions that follow. The floor plan is not drawn to scale.
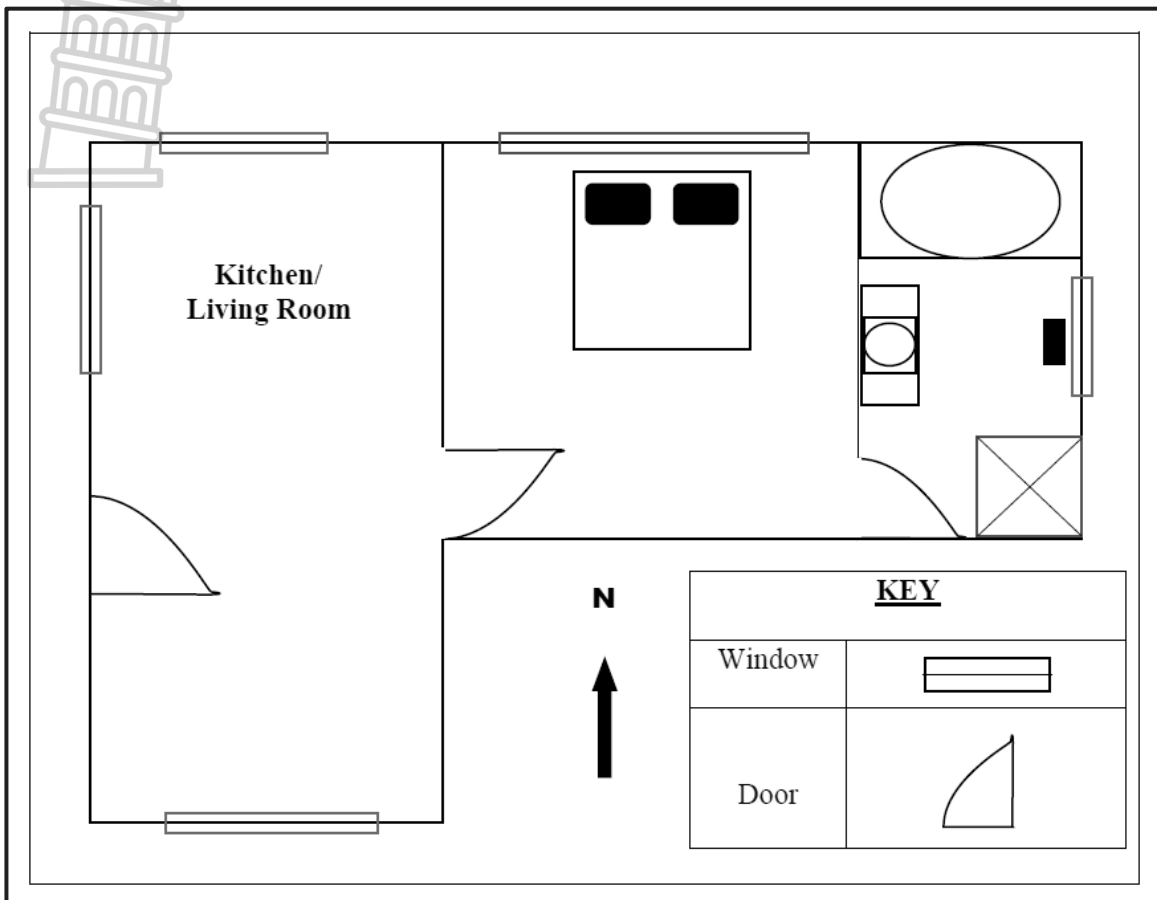


3.1 How many windows does this flat have? (2)

3.2 From which general direction would you be entering the flat, if you came in at the front door in the living room? (2)

3.3 The living room/kitchen is going to be tiled. The scale used for this plan is 1 : 50.

    3.3.1 Explain the meaning of the scale 1 : 50. (2)

    3.3.2 If the width on the plan measures 4,8 cm and the length measures 9,3 cm, calculate the real area of the room. Give your answer in square metres (m²).

        **You may use the formula: Area = length × breadth** (4)

        **[10]**

## QUESTION 4

Given below is a simple cheese and tomato pizza recipe. Study the recipe and answer the questions that follow.

| SIMPLE CHEESE AND TOMATO PIZZA |
| :---: |
| (Makes 1 large pizza) |
| ¾ cup homemade pizza dough |
| 1 tbsp olive oil |
| 2 cloves garlic |
| 75 mℓ tomato paste |
| 0,23 kg mozzarella cheese |
| 2 tomatoes |
| Salt and pepper to taste |

| **Remember:** |
| :---: |
| 1 cup = 250 mℓ |
| 1 tablespoon = 15 mℓ |
| 1 teaspoon = 5 mℓ |

4.1　　Determine the amount of homemade pizza dough needed for 3 large pizzas.
　　　　Give your answer in millilitres (mℓ).　　　　(3)

4.2　　How many tablespoons of tomato paste is needed for this recipe?　　　　(2)

4.3　　Convert the amount of cheese to grams.　　　　(2)

4.4　　When the pizza is completed, the base has a diameter of 32 cm and a height of 12 mm.



Diameter = 32 cm

Height = 12 mm
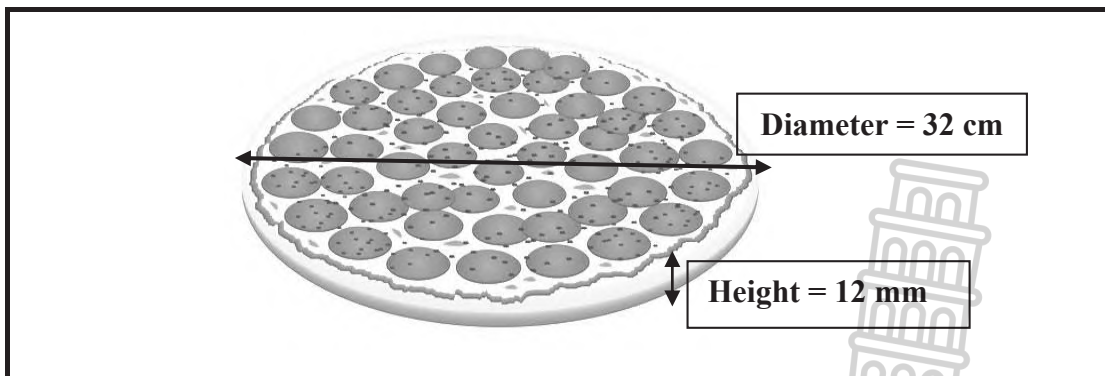
[Adapted from Google]

4.4.1　　Write down the radius of one pizza base.　　　　(2)

4.4.2　　Calculate the volume of one pizza (in mm³).

　　　　　　**You may use the formula: Volume = $\pi r^2 \times h$; where $\pi = 3,142$**　　　　(3)

　　　　　　　　　　　　　　　　　　　　　　　　　　　　**[12]**

**QUESTION 5**

5.1 A group of Grade 10 learners were asked what amount of airtime they use in a month. The results are given in the table below. Refer to the information and answer the questions that follow.

**TABLE 3: RESULTS OF GRADE 10 AIRTIME USAGE SURVEY**

| R12 | R29 | R5 | R5 | R12 | R29 | R29 | R110 |
|-----|-----|----|----|-----|-----|-----|------|
|     |     |    |    |     |     |     |      |
| R5  | R5  | R12 | R29 | R29 | R55 | R5  | R12  |

5.1.1 Define the term *median*. (2)

5.1.2 Determine the mode for the above data. (2)

5.1.3 Calculate the average amount of airtime used by the learners in a month. (3)

5.1.4 Show by means of calculation that the range of this data is R105. (2)

5.1.5 What is the probability that a learner uses R29 airtime in a month?
Give your answer as a decimal fraction, rounded off to three decimal places. (3)

5.2 A survey was conducted where learners were asked what their favourite brand of sneakers is. The results are shown in the figure below.



**FAVOURITE SNEAKERS**

**Key**

A: Adidas
B: Reebok
C: Nike
D: Puma
E: Converse
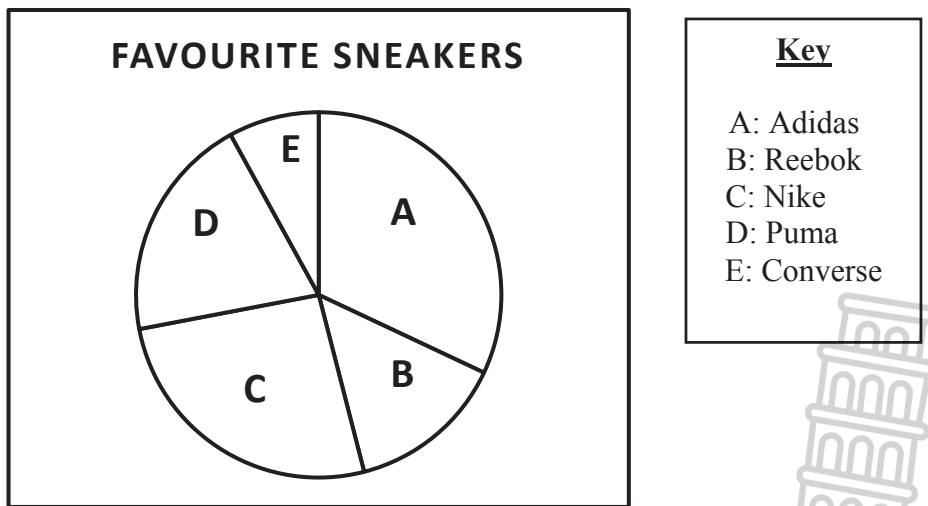
5.2.1 Name the type of graph illustrated above. (2)

5.2.2 Name the THREE most favourite brands of sneakers. (2)

5.2.3 If 300 learners were involved in the survey, and 32% preferred Adidas sneakers, calculate the number of learners who favoured Adidas. (2)

**[18]**

**TOTAL: 75**

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**MATHEMATICAL LITERACY P1
MARKING GUIDELINE**

**MARKS:**  **75**

| INSTRUCTIONS AND INFORMATION FOR MARKING | |
|---|---|
| | |
| **Symbol** | **Explanation** |
| M | Method |
| MA | Method with accuracy |
| A | Accuracy |
| CA | Consistent accuracy |
| RT/RG/RM | Reading from a table/graph/map |
| SF | Correct substitution in a formula |
| P | Penalty, e.g. for no units, incorrect rounding off etc. |
| S | Simplification |
| R | Rounding off |
| NPR | No penalty rounding or omitting units |
| AO | Answers only, full marks |
| C | Conversion |

This marking guideline consists of 6 pages.

| **QUESTION 1** | | | |
|---|---|---|---|
| **Quest** | **Solution** | **Explanation** | **Level** |
| 1.1 | R7 500,00 √√ | 2A correctly identifying value  (2) | L1 |
| | | | |
| 1.2 | Discrete √√ | 2A correct answer  (2) | L1 |
| | | | |
| 1.3 | Number of males = 120 × 45% √  = 120 × 0,45  = 54 males √ | 1MA multiplying correct values  1A  (2) | L1 |
| | | | |
| 1.4.1 | 23:55 − 18:30 √  = 5 hours 25 min √ | 1M subtracting time  1A correct time in hours and minutes  (2) | L1 |
| | | | |
| 1.4.2 | Total Cost = R7 500 + R900 √√  = R8 400 √ | **CA FROM 1.4.1**  1A R900  1MA adding correct values  1CA answer  (3) | L1 |
| | | | |
| 1.4.3 | Average cost = $\frac{R8\ 400}{120}$ √  = R70 √ | **CA FROM 1.4.2**  1M  1CA  (2) | L1 |
| | | | |
| 1.5 | Perimeter = 6 m × 4 √  = 24 m √ | 1SF correct values in formula  1A answer in m  (2) | L1 |
| | | | **[15]** |

| Quest | Solution | Explanation | Level |
|-------|----------|-------------|-------|
| 2.1.1 | R65,00 √√ | 2RT reading correct value from table    (2) | L1 |
| | | | |
| 2.1.2 | R1 700 – R1 500 = R200 (over R1 500) √<br><br>∴ Cost = R12,00 + (R1,20 × 2) √<br>        = R14,40 √<br><br>**OR**<br><br>R200 ÷ 100 = 2 √<br>(2 × R1,20) + R12,00 √<br>= R14,40 √ | 1M subtracting amounts<br>1SF<br>1CA<br><br><br>1M dividing<br>1SF<br>1CA    (3) | L2 |
| | | | |
| 2.1.3 | R0,00 √√<br>**OR**<br>No money √√ | 2RT identifying correct value from table    (2) | L1 |
| | | | |
| 2.2 | VAT = 15% × R90,80 √<br>      = 0,15 × R90,80<br>      = R13,62 √ | 1MA multiplying correct values<br>1A answer    (2) | L1 |
| | | | |
| 2.3 | Interest per year = R2 000 × 0,095<br>                  = R190 √<br><br>Total Interest = R190 × 2<br>              = R380 √<br><br>Total value = R2 000 + R380<br>            = R2 380 √ | 1MA calculating interest per year<br><br>1M multiplying by 2 years<br><br>1CA final answer    (3) | L2 |
| | | | |
| 2.4.1 | Variable: groceries, petrol, electricity, clothing, entertainment (CHOOSE ONE) √<br><br>Fixed: rent, car payment, insurance (Choose ONE) √ | 2RT one variable and one fixed    (2) | L1 |

**QUESTION 2**

| 2.4.2 | Total = 1 + 4<br> = 5 parts √<br><br>∴ Electricity = $\frac{1}{5}$ × R3 700 √<br><br> = R740 √ | 1MA adding parts for ratio<br><br>1M calculating ratio<br><br>1CA answer<br>(3) | <br><br><br><br><br><br>L2 |
|---|---|---|---|
| | | | |
| 2.4.3 | % = $\frac{2\ 100}{11\ 750}$ × 100 √<br><br> = 17,8723 … √<br> = 18% √ | 1MA multiplying correct values<br><br>1S simplifying correctly<br><br>1R rounding to nearest %<br>(3) | <br><br><br><br><br><br><br>L2 |
| | | | **[20]** |

## QUESTION 3

| Quest | Solution | Explanation | Level |
|---|---|---|---|
| 3.1 | 5 windows √√ | 2RM<br>(2) | L1 |
| | | | |
| 3.2 | West √√ | 2A<br>(2) | L1 |
| | | | |
| 3.3.1 | One unit on the floor plan is equal to fifty units in reality. √√ | 2 Explanation<br>(2) | L1 |
| | | | |
| 3.3.2 | Real width: 4,8 cm × 50 = 240 cm<br> ≈ 2,4 m √<br><br>Real length: 9,3 cm × 50 = 465 cm<br> ≈ 4,65 m √<br><br>∴ Area = 2,4 m × 4,65 m √<br> = 11,16 m² √ | 1MA using scale to calculate length and width<br><br>1MA converting to metres<br><br>1SF substituting correct values<br><br>1CA answer<br>(4) | <br><br><br><br><br><br><br><br><br><br>L3 |
| | | | **[10]** |

| **QUESTION 4** | | | |
|---|---|---|---|
| **Quest** | **Solution** | **Explanation** | **Level** |
| 4.1 | ¾ × 250 mℓ<br>=187,5 mℓ √<br><br>∴ 187,5 mℓ × 3 √<br>= 562,5 mℓ √<br><br>**OR**<br><br>¾ × 3 = $\frac{9}{4}$ √<br><br>∴ $\frac{9}{4}$ × 250 mℓ √<br>= 562,5 mℓ √ | 1MA multiplying correct values<br><br>1S simplifying by multiplying by 3<br><br>1CA answer in mℓ<br><br>(3) | L2 |
| 4.2 | 75mℓ ÷ 15 mℓ √<br>= 5 tbsp √ | 1MA dividing correct values<br>1A answer<br>(2) | L1 |
| 4.3 | 0,23 kg × 1 000 √<br>= 230 g √ | 1MA multiplying correct values<br>1A answer<br>(2) | L1 |
| 4.4.1 | Radius = 32 cm ÷ 2 √<br>= 16 cm √<br><br>**OR**<br><br>Radius = 320 mm ÷ 2 √<br>= 160 mm √ | 2A correct radius<br><br>AO acceptable<br><br>Accept answer in mm or cm<br>(2) | L1 |
| 4.4.2 | Volume = 3,142 × (160 mm)² × 12 mm √√<br>= 965 222,4 mm³ √<br><br>**OR**<br><br>Volume = 3,142 × (16 cm)² × 1,2 cm √<br>= 965, 2224 cm³ √<br>≈ 965 222,4 mm³ √ | **CA FROM 4.4.1 (64 cm or 640 mm)**<br><br>1C convert<br><br>1SF correct substitution<br><br>1CA answer in mm³<br>(3) | L2 |
| | | | **[12]** |

| Quest | Solution | Explanation | Level |
|---|---|---|---|
| | **QUESTION 5** | | |
| | | | |
| 5.1.1 | The median is the middle value of a data set, after arranging it in ascending/descending order. √√ | 2A Correct definition (2) | L1 |
| | | | |
| 5.1.2 | R5 √ <br> R29 √ | 2A correctly identifying R5 and R29 (2) | L1 |
| | | | |
| 5.1.3 | Average $= \dfrac{383}{16}$ √√ <br><br> $= 23{,}9375$ √ | 1MA adding correctly <br><br> 1M divide by 16 <br><br> 1CA (3) | L2 |
| | | | |
| 5.1.4 | Range $= 110 - 5$ √ $\overset{√}{\phantom{x}}$ <br> $= 105$ | 1MA using correct values <br><br> 1M subtracting (2) | L1 |
| | | | |
| 5.1.5 | Probability (R29) $= \dfrac{5}{16}$ √√ <br><br> $= 0{,}3125$ <br> $\approx 0{,}313$ √ | 1A correct numerator <br><br> 1A correct denominator <br><br> 1 Rounding (3) | L2 |
| | | | |
| 5.2.1 | Pie chart √√ | 2A identifying correct graph (2) | L1 |
| | | | |
| 5.2.2 | Adidas, Nike, Puma √√ <br><br> **OR** <br><br> A, C, D √√ | 2RG correctly identifying top 3 (2) | L1 |
| | | | |
| 5.2.3 | 32% × 300 √ <br> = 96 learners √ | 1MA multiplying correct values <br> 1A (2) | L2 |
| | | | **[18]** |
| | | | |
| | | **TOTAL:** | **75** |