Education and Sport Development

Department of Education and Sport Development
Departement van Onderwys en Sport Ontwikkeling
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NORTH WEST PROVINCE

# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## MATHEMATICAL LITERACY P2

## JUNE 2019

**MARKS:** 75

**TIME:** 1,5 hour

**This question paper consists of 12 pages including 1 annexure and 2 answer sheet.**

**INSTRUCTIONS AND INFORMATION**

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

2. 2.1 Use the ANNEXURE in the QUESTION PAPER to answer QUESTION 4.2.

   2.2 Answer the following questions on the ANSWER SHEETS attached.
   - QUESTION 1.3 on the ANSWER SHEET 1
   - QUESTION 2.2 on the ANSWER SHEET 2

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

4. An approved calculator (non- programmable and non- graphical) may be used, unless stated otherwise.

5. ALL the calculations must be clearly shown.

6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.

7. Units of measurement MUST be indicated, where applicable.

8. Diagrams are NOT necessarily drawn to scale, unless stated otherwise.

9. Write neatly and legibly.

**QUESTION 1**

Phemelo owns a taxi with a maximum capacity of 25 passengers. His cost per trip include R5 per passenger payable to the taxi association and R200 for fuel. He charges R20 per passenger who boards his taxi.

Use the information above to answer the questions that follow.

1.1 Write down the formula that Phemelo can use to calculate his expenses in the form:

**Expense (R) =** (2)

1.2 Use the formula in Question 1.1 to determine the expense for transporting seven passengers. (3)

1.3 The formula for calculating Phemelo's income is as follows:

**Income = R20 × number of passengers**

Use the above formula to complete TABLE 1 on the ANSWER SHEET provided. Hence, draw the graph illustrating Phemelo's income on the same set of axes with the graph of his expenses. (8)

1.4 Phemelo claims that for a single trip he only makes profit if he transport a minimum of 12 passengers. Do you agree with Phemelo? Use the graph to justify your answer. (3)

1.5 On a particular day, the temperature on the dashboard of the taxi was 99˚F. One of the passengers stated that this temperature is 37˚C. Verify, using calculations, whether the passenger is correct.

**Note: The temperature is displayed on the dashboard as a whole number.**

You may use the formula:

$$^{\circ}\mathbf{F} = \mathbf{1,8} \times {}^{\circ}\mathbf{C} + \mathbf{32}^{\circ}$$ (5)

**[21]**

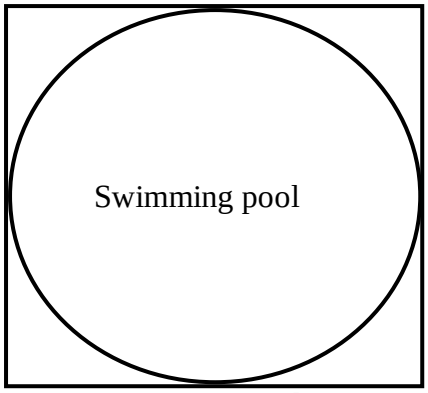
## QUESTION 2

2.1 Malebogo has a circular swimming pool with a diameter of 32,8084 feet and the depth of 2 metres in her yard. She cleans it every month and it costs her a lot of money to refill. She intends to buy a square covering material for swimming pool so that she no longer cleans it monthly.

Below it the picture of the swimming pool and the diagram illustrating a swimming pool with the covering material.

**Picture**


**Diagram**




You may use the following formulas:

**Area of a square = side × side**

**Volume of a circular prism = $\pi r^2 h$, where $\pi$ = 3,142**

**NOTE: 1 m = 3,28084 feet and 1 $m^3$ = 1 kilolitre**

Use the information above to answer the questions that follow.

2.1.1 Malebogo states that the pool should be filled to 80% of its capacity. Give ONE possible reason for her statement. (2)

2.1.2 Calculate the amount of material (to the nearest $feet^2$) needed to cover the entire circular swimming pool. (3)

2.1.3 Calculate the volume (in kilolitres) of the circular swimming pool. (6)

2.2

Assume that Malebo go used 150 kilolitres of water I July 2018.

The table below shows the water tariff for Tshwane Municipality with effect from 1 July 2018.

**TABLE 2: Water tariff for Tshwane Municipality with effect from 1 July 2018**

| **Water usage in kilolitres (kℓ)** | **Tariff per kilolitre** |
|---|---|
| 0 to 6 kℓ per 30 days period | 9,54 |
| 7 to 12 kℓ per 30 days period | 13,62 |
| 13 to 18 kℓ per 30 days period | 17,89 |
| 19 to 24 kℓ per 30 days period | 20,70 |
| 25 to 30 kℓ per 30 days period | 23,66 |
| 31 to 42 kℓ per 30 days period | 25,57 |
| 43 to 72 kℓ per 30 days period | 27,36 |
| More than 72 kℓ per 30 days period | 29,29 |

**NOTE: The above tariffs EXCLUDE 15% VAT.**

Use information above to complete TABLE 2 on ANSWER SHEET 2. (8)

**[19]**

## QUESTION 3

3.1

Below is the Ramatla Pre-School budget for 2017 and 2018 financial years.

**TABLE 3: Ramatla Pre-School Budget**

| **INCOME** | **2018 budget** | **2017 actual** | **2017 budget** |
|---|---|---|---|
| School fees | R 831 600 | R 693 000 | R 739 200 |
| Registration fees | R 25 200 | R 21 000 | R 22 400 |
| Subsidy | R 275 000 | R 275 000 | R 275 000 |
| Donations | R 7 600 | R 4 500 | R 4 800 |
| **TOTAL INCOME** | **R1 139 400** | **R 993 500** | **R1 041 400** |
| **EXPENSES** | | | |
| Salaries | R 441 000 | R 420 000 | R 420 000 |
| Stationery | R 17 000 | R 13 750 | R 15 000 |
| Services | R 13 200 | R 11 472 | R 12 000 |
| Transport | R 19 750 | R 16 720 | R 25 000 |
| Food | R 608 400 | R 561 600 | R 570 000 |
| **TOTAL EXPENSES** | **R1 099 350** | **R1 023 542** | **R1 042 000** |

Use TABLE 3 above to answer the questions that follow.

3.1.1 Give ONE possible reason why the actual school fees income in 2017 is not the same as the amount budgeted for in 2017. (2)

3.1.2 Name TWO items that can be classified as services at a pre-school. (2)

3.1.3 One of the SGB members of Ramatla Pre-school claimed that the actual expenses on salaries in 2017 used more than 40% of the total income.
Verify, using calculations, whether the claim is valid. (4)

3.2 Below is the timetable for Ramatla Pre-school.

**TABLE 4: TIMETABLE FOR RAMATLA PRE-SCHOOL**

| DAY | PERIOD | | | | | | |
|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| **Duration** | 08:00 to 08:30 | 08:45 to 09:30 | 09:45 to 10:30 | 10:30 to 11:30 | 11:30 to 12:00 | 12:00 to 13:00 | 13:00 to 16:00 |
| **Monday** | Bible study | Drawing | Counting | LUNCH | Story telling | Sleeping | Playing |
| **Tuesday** | Bible study | Games | Language | | Story telling | Sleeping | Playing |
| **Wednesday** | Bible study | Counting | Language | | Story telling | Sleeping | Playing |
| **Thursday** | Bible study | Games | Counting | | Story telling | Sleeping | Playing |
| **Friday** | Bible study | Language | Drawing | | Story telling | Sleeping | Playing |

Use TABLE 4 above to answer the questions that follow.

3.2.1 Calculate the time (in hours) spent on teaching before lunch on Wednesday. (3)

3.2.2 Give ONE possible reason why there is story telling in the timetable. (2)

**[13]**

## QUESTION 4

4.1

TABLE 5 below shows a list of the annual inflation rates for some countries during 2016.

**TABLE 5: Annual inflation rates for some countries in 2016**

| **Country** | **Annual inflation rates (%)** |
|---|---|
| Australia | 3,00 |
| Cameroon | 1,06 |
| Cyprus | -0,58 |
| Egypt | 10,61 |
| Montenegro | -1,20 |
| South Africa | 6,3 |

**NOTE: 1 euro (€) = R14,2417 and 1 euro (€) = 1,15 dollar ($)**

Use TABLE 5 above to answer the questions that follow.

4.1.1 Write down the meaning of the negative sign for some of the inflation rates. (2)

4.1.2 A South African tourist visited Australia in 2016 and spent R75 on a standard cup of coffee. Determine the amount spent on coffee in dollars. (4)

4.1.3 The annual inflation rate for Egypt remained unchanged for the past two years since 2016.

(a) Calculate the monthly flat rental in 2017 for a flat that was costing 1654 EGP (Egyptian pound) in 2018. (3)

(b) An Egyptian tourist, Abigo, visited South Africa and stayed in a flat similar to the one in Question 4.1.3(a). During 2016 the monthly rental for this flat was R6 350 and in 2018 was R7 175.
Abigo claims that the percentage monthly rental increase in South Africa is half the percentage monthly rental increase in Egypt over the same two years.
Verify, using calculations, whether his claim is valid. (4)
You may use the formula:

$$\textbf{\% increase} = \frac{\textbf{monthly rental (2018)} - \textbf{monthly rental (2016)}}{\textbf{monthly rental in 2016}} \times 100\%$$

4.2 Abigo stayed in Pretoria during his visit in South Africa. He was residing in Sunnyside.

Use ANNEXURE provided to answer the questions that follow.

4.2.1 Write down the position of Daspoort on the map relative to Church Square? (2)

4.2.2 Abigo wants to drive from his flat in Sunnyside to the store in Pretoria Central for shopping.

Describe the shortest route he could use. (4)

4.2.3 The actual distance from Abigo's flat to the store is 6 km. Calculate the distance (in cm) on the map. (3)

**[22]**

**TOTAL MARK: 75**

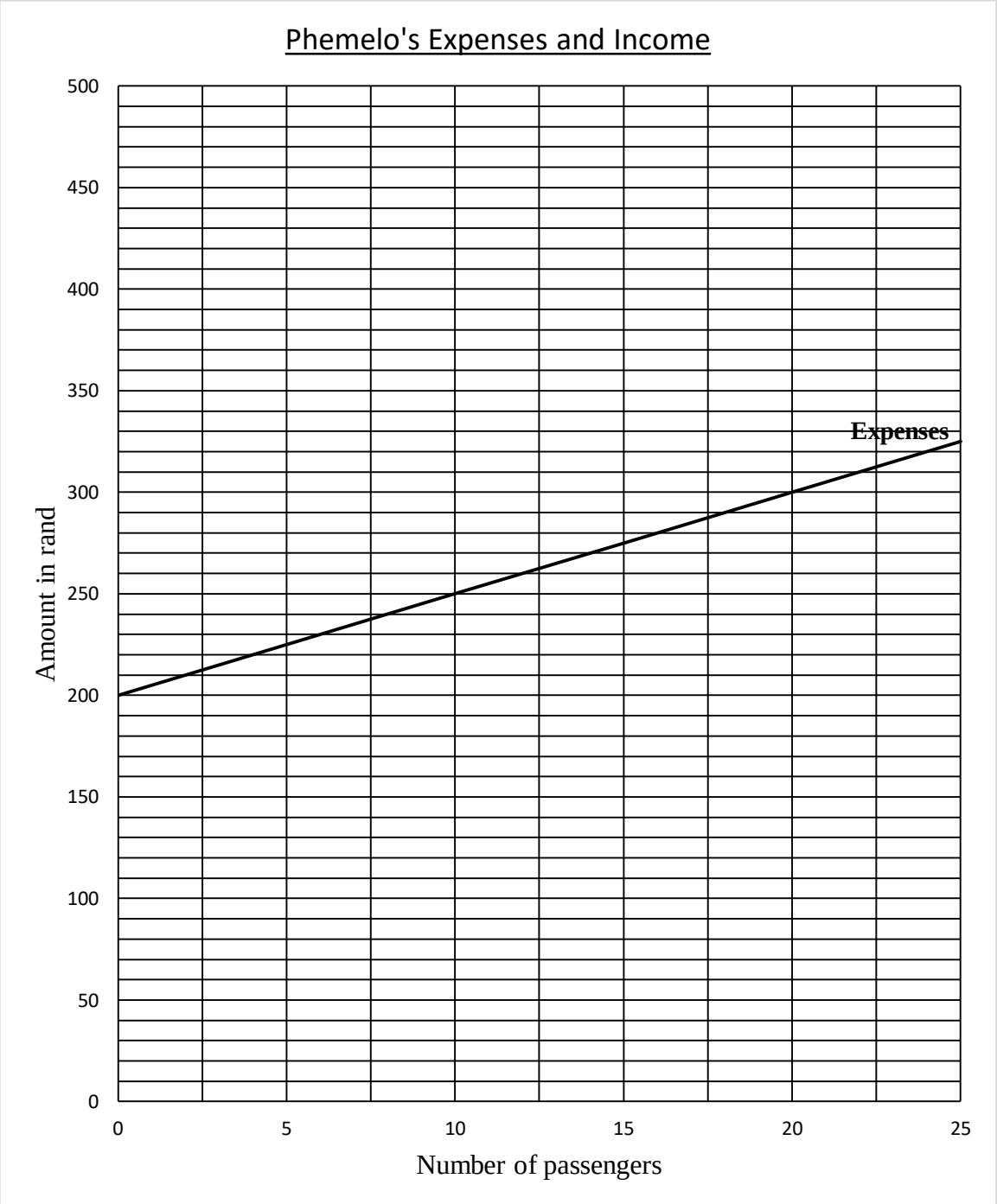
NAME OF LEARNER…… CLASS…….

**ANSWER SHEET 1**

**QUESTION 1.3**

**TABLE 1: Phemelo's Income**

| Number of passengers | 0 | 5 | 10 | 15 | 20 | 25 |
|---|---|---|---|---|---|---|
| Income | | | | | | |



**NAME OF LEARNER…… CLASS……..**

**ANSWER SHEET 2**

**QUESTION 2.2**

**Complete the table below**

**TABLE 2: Water tariff for Tshwane Municipality with effect from 1 July 2018**

| **Water usage in kilolitres (kℓ)** | **Tariff per kilolitre** | **Calculations** | **Cost** |
|---|---|---|---|
| 0 to 6 kℓ per 30 days period | 9,54 | | |
| 7 to 12 kℓ per 30 days period | 13,62 | R13,62× 6 | R81,72 |
| 13 to 18 kℓ per 30 days period | 17,89 | | |
| 19 to 24 kℓ per 30 days period | 20,70 | R20,70× 6 | R124,24 |
| 25 to 30 kℓ per 30 days period | 23,66 | R23,66× 6 | R141,96 |
| 31 to 42 kℓ per 30 days period | 25,57 | R25,57× 12 | R306,84 |
| 43 to 72 kℓ per 30 days period | 27,36 | | |
| More than 72 kℓ per 30 days period | 29,29 | | |
| **Total cost excluding VAT** | | | |
| **Total cost including VAT =** | | | |

**ANNEXURE**

**QUESTION 4.2**

**A MAP OF PART OF PRETORIA**