

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

NOVEMBER 2018

MATHEMATICAL LITERACY P2

MARKS: 75

TIME: 1½ hours

This question paper consists of 9 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions in the question paper.

1. This question paper consists of FOUR questions. Answer ALL the questions.
2. Number the answers correctly according to the numbering system used in this question paper.
3. Start EACH question on a NEW page.
4. You may use an approved calculator (non-programmable and non-graphical), unless stated otherwise.
5. Show ALL calculations clearly.
6. Round off ALL final answers appropriately according to the given context, unless stated otherwise.
7. Indicate units of measurement, where applicable.
8. Maps and diagrams are NOT drawn to scale, unless stated otherwise.
9. Write neatly and legibly.

QUESTION 1

- 1.1 Duanita works as an editor for ‘The Correct Language Company’. She receives a basic salary every month. The number on the salary slip indicates the number of months she has been working for the company. Below is a copy of Duanita’s salary slip for February 2018.

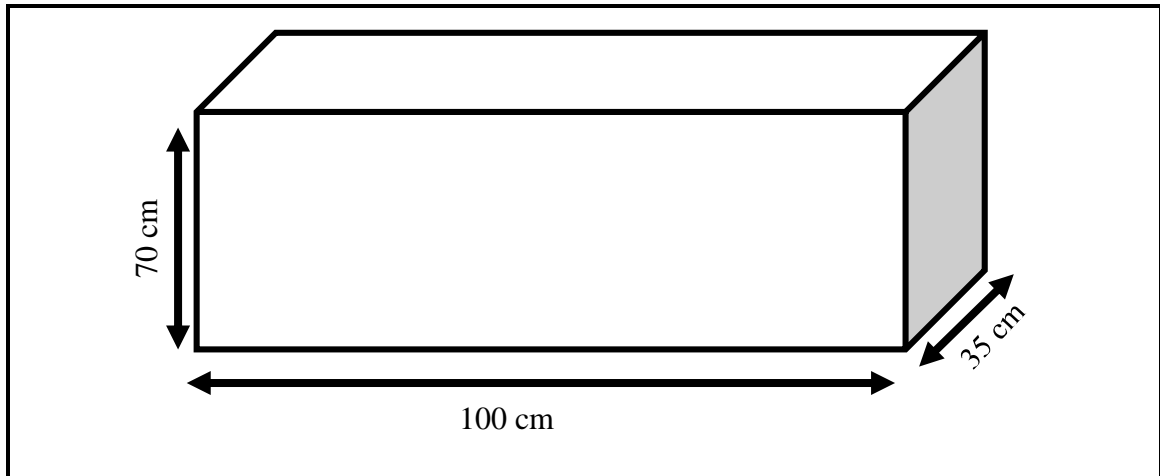
SALARY SLIP	
Employee name: Duanita Verwey Identity number: 8903305432083 Marital status: Single	
Tax reference no.: 987234560 Bank account no.: 24681XXXX Salary slip no.: 75 Pay date: 25 February 2018	
Earnings	Deductions
Basic Salary ___(B)___	Tax R2 923,25 U.I.F R224,00 Medical Aid R1 182,00 Pension R1 875,00
Gross Salary ___(B)___	Total deductions ___(A)___ Net Salary R18 795,75

Use the above salary slip to answer the questions below.

- 1.1.1 Determine the missing values of **A** and **B** respectively. (4)
- 1.1.2 Show with the necessary calculations that the deduction for Pension is 7,5%. (2)
- 1.1.3 Determine the number of years and months that Duanita has been working for this company. (4)
- 1.1.4 Why do you think some of the digits have been omitted from the account number? (2)
- 1.1.5 Duanita is offered an increase of 6,4%. She claims that her net pay for March will be R1 000 more than the net pay for February. Verify, with the necessary calculations, whether her statement is valid or not.

NOTE: Her tax will increase by R175,00, the pension will increase by R120,00 and the medical aid and UIF will remain unchanged. (7)

- 1.2 Duanita wants a garden box at the back of her house to plant some herbs. She decides to buy the garden box below.



Refer to the above garden box and answer the questions below.

- 1.2.1 Calculate the area of the base of the garden box. Give your final answer in square metres (m^2).

You may use the following formula:

$$\text{Area} = \text{length} \times \text{breadth} \quad (3)$$

- 1.2.2 The garden box cannot be filled with sand right to the top. The garden box can only be filled to 75% of its height. Calculate the height of the sand in the garden box to the nearest centimetre.

(3)
[25]

QUESTION 2

- 2.1 Water has become a critical issue in South Africa, especially in the Western Cape and the Eastern Cape, where dam levels have dropped tremendously over the past few years. Below is a table showing the major supply dams in the Western Cape.

TABLE 1:
Water storage in the major dams comprising Western Cape water supply system

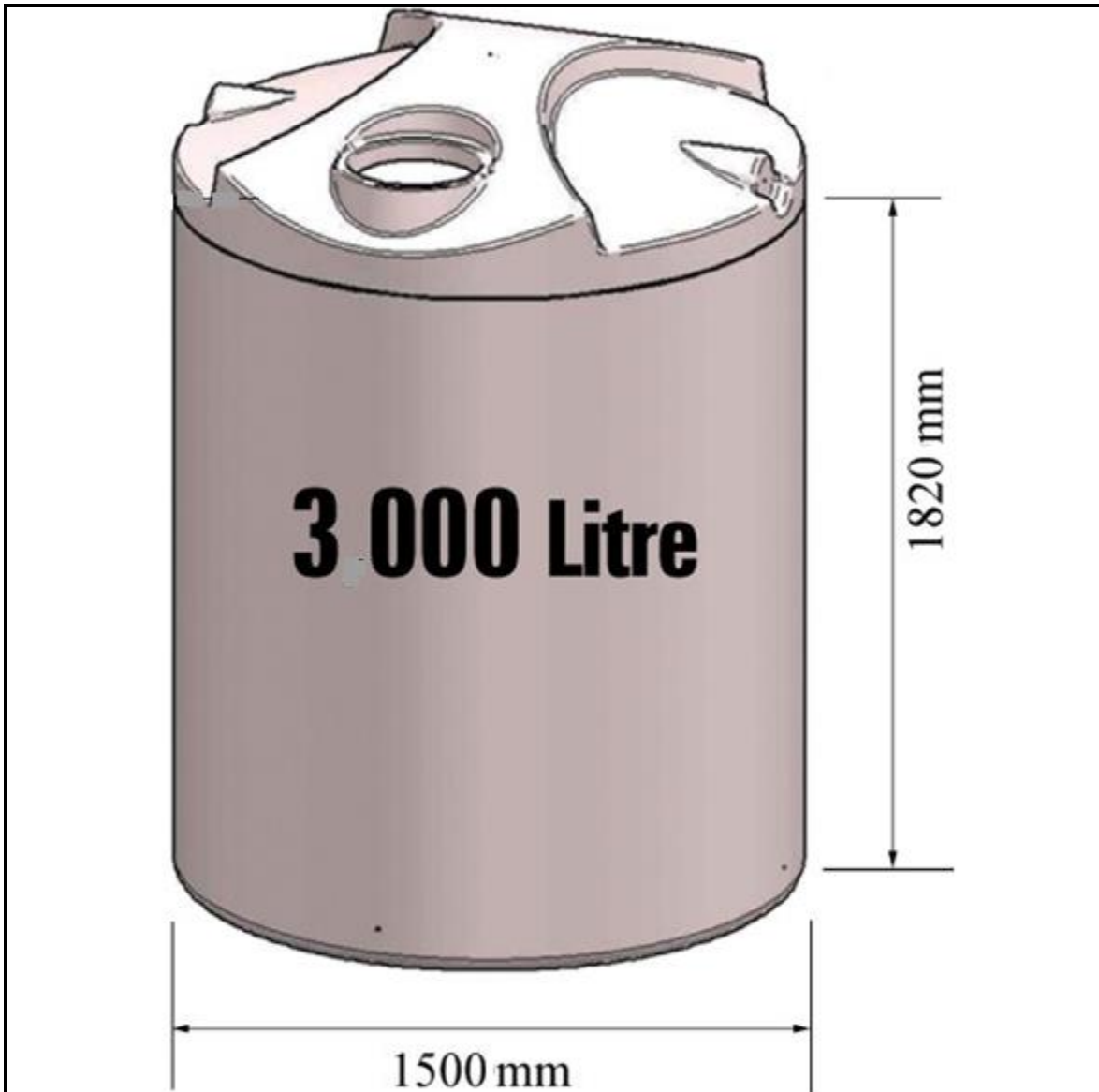
Major dams	Capacity (<i>ML</i>) Mega-litre	Storage				
		%	%	%	%	%
		25 June 2018	25 June 2017	25 June 2016	25 June 2015	25 June 2014
Berg River	130 010	67,8	36,5	38,7	60,0	100,2
Steenbras Lower	33 517	46,5	30,2	37,1	55,4	72,6
Steenbras Upper	31767	96,5	60,6	65,8	57,4	101,3
Theewaterskloof	480 188	30,4	18,6	33,9	54,9	98,5
Voëlvlei	164 095	37,6	18,4	27,4	39,2	81,6
Wemmershoek	58 644	71,2	37,5	50,1	53,2	89,8
Total stored	898 221	383 263	218 433	320 741	474 301	846 413
% Storage		A	24,3	35,7	52,8	94,2

***The last 10% of a dam's water is difficult to use, so the usable water in the dam is approximately 10% less than the dam level.**

Use TABLE 1 above to answer the questions below.

- 2.1.1 Determine the value of **A** (the percentage storage for 25 June 2018). (2)
- 2.1.2 Describe a possible trend for the period in terms of the total water stored. (3)
- 2.1.3 Give ONE possible reason for the low dam levels from 2015 to 2017. (2)
- 2.1.4 Calculate the mean percentage of the dams in 2016. (3)
- 2.1.5 Calculate the probability that a dam will have 45% or more water stored on 25 June 2018. Write your final answer to 3 decimal places. (4)

- 2.2 Mervyn bought a water tank to store water. Study the diagram of the water tank below and answer the questions that follow.



The water tank has the following dimensions:

Diameter = 1 500 mm

Height = 1 820 mm

You may use the following formula and conversion:

Volume = $\pi \times \text{radius} \times \text{radius} \times \text{height}$; where $\pi = 3,142$

Conversion: $1 \text{ cm}^3 = 1\,000 \text{ litres}$

The capacity of the water tank is advertised as 3 000 litres. Hence, calculate the capacity of the water tank by using the dimensions and account for the difference between the advertised capacity and the capacity that you have calculated.

(6)
[20]

QUESTION 3

- 3.1 Jona buys a sand pit for his 4-year-old daughter, Jaimee, and puts it in his backyard. Below is a diagram of the sandpit with dimensions.



Refer to the diagram of the sandpit to answer the questions below.

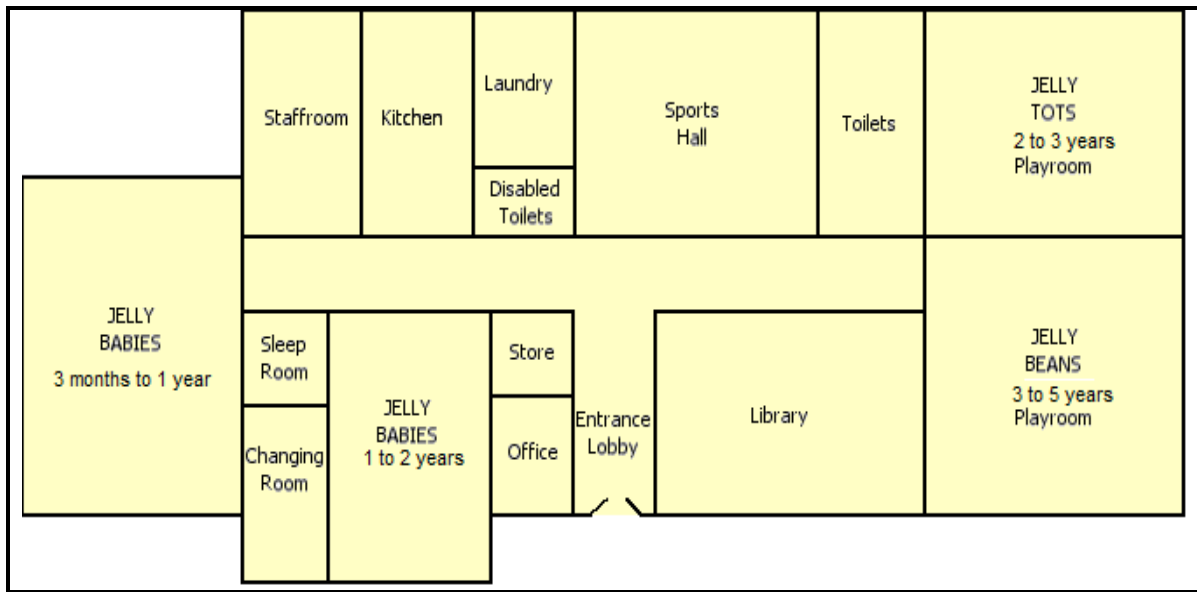
- 3.1.1 Jona finds a space to put the sandpit, but he only considers the perimeter of the base of the sand pit. Calculate the perimeter of the base of the sand pit. Give your final answer in metres.

You may use the following formula:

$$\text{Perimeter} = 2 \times \text{length} + 2 \times \text{breadth} \quad (3)$$

- 3.1.2 The sand that Jona wants to put in the sand pit, should only cover 80,5% of the height of the sandpit. Determine the height of the sand in the sand pit to the nearest centimetre. (2)

3.2 Jona’s daughter Jaimee attends a playschool. The following is a floor plan of the playschool. Study the floor plan and answer the questions below.



3.2.1 Joan’s neighbours also want to enrol their 6-year-old son at Jaimee’s playschool. Give evidence from the floorplan to show whether the playschool will accept the neighbour’s son. (2)

3.2.2 Does this playschool cater for disabled children? Justify your answer with evidence from the floorplan. (2)

3.2.3 Give ONE possible reason why the 3 months to 1-year-old and 1-year to 2-year-old classrooms are situated far away from the 2-year to 5-year-old classrooms. (2)

3.3

The playschool fees are structured as follows:

AGE	FEE PER MONTH
3 months to 1 year and 6 months	R1 050
1 year and 7 months to 3 years and 6 months	R820
3 year and 7 months to 5 years	R550

3.3.1 Give ONE possible reason why the fees for 3 months to 1 year and 6 months are much higher than the others. (2)

3.3.2 The playschool hosts 35 children of which nine are in the age group 3 months to 1 year and 6 months, ten in the age group 1 year and 7 months to 3 years and 6 months and the rest in the age group 3 year and 7 months to 5 years.

Calculate the playschool’s income for one year if none of the learners has withdrawn. (5)

[18]

QUESTION 4

4.1 Below is an extract from a map of Soweto. Study the map and answer the questions below.



- 4.1.1 Describe the route that you must take, with geographical directions, if you have to travel from Johannesburg CBD to Carltonville. (4)
- 4.1.2 Write the bar scale (line scale) as a unit scale. (3)
- 4.2 4.2.1 In December 2017 the total number of tourists who visited Soweto was 1,5 million. This was an increase of 6,25% from December 2016. Calculate the number of tourists who visited Soweto in 2016. (3)
- 4.2.2 Give ONE possible reason why more people visit Soweto in December than in any other month. (2)

[12]

TOTAL: 75