REALOGILE HIGH SCHOOL

MATHEMATICAL LITERACY

PAPER 2

NOVEMBER EXAM GR 11

MARKS: 75

Duration : 2 HOUR

EXAMINER : MATHEBULA HN

MODERATOR : MOTSIRI DC

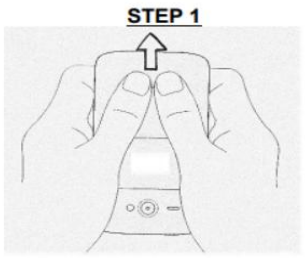
INSTRUCTIONS AND INFORMATION

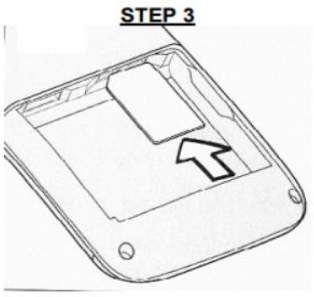
1. This assignment/investigation consists of THREE questions. Answer ALL the questions.
2. Number the questions correctly according to the numbering system used in this assignment/investigation.
3. You may use an approved calculator (Non-programmable and non-graphical, unless stated otherwise.
4. Show ALL calculations clearly.
5. Round off ALL final answers to Two decimal places, unless stated otherwise.
6. Indicate units of measurement, where applicable
7. Maps and diagrams are NOT necessarily drawn to scale, unless stated otherwise.
8. Write neatly and legible

This assignment/investigation consists of 3 questions and 6 pages

QUESTION 1 [11]

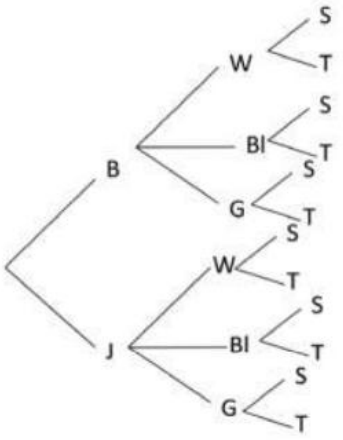
1.1 Zoleka bought herself a cellphone. She wants to insert her SIM card into the phone and have to follow the instructions as shown in the illustrations below.





1.1.1 Briefly explain the steps that Zoleka needs to take to insert the SIM card (6)

1.2 The tree diagram below shows the probability of Zoleka choosing various pairs of pants, shirts and shoes. Use this information to answer the questions that follow.



B – Black pants
J – Jeans
W – White shirt
Bl – Blue shirt
G – Green shirt
S – Sandals
T – Takkies

1.2.1 How many possible outcomes could Maria choose? (2)

1.2.2 Write down all the possible outcomes (3)

1.1.3 Calculate the probability that Maria will choose to wear black pants, a green shirt and takkies? (3)

[14]

QUESTION 2 [16]

For the questions that follow below, please Use the map on **annexure A** provided for you on the last page of this exam.

2.1.1 Measure the distance from Pretoria to Mbombela in cm on the map above. (2)

2.1.2 Use the ratio of on 1:3000 to calculate the actual distance between Pretoria to Mbombela Using the map. (4)

2.1.3 If the distance from Pretoria to Mbombela is 314 km using the N4 , How long will this journey take if the Baloyi family travel at a speed of 110 km per hour, and only made one 30 min stop at Belfast. (4)

Give your final answer to the nearest.

Speed = distance / time

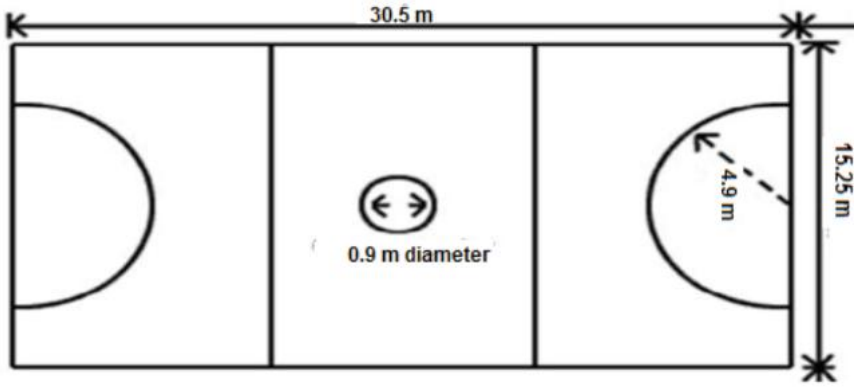
2.1.4 List the Nation Roads that you need to use when travelling from **Potchefstroom** to **Piet Retief** (2)

2.2 To travel by bus, cost 70c per km. Calculate how much a person will pay for transport from **Potchefstroom to Maputo** which is **668.8 km** away . Give your final answer rounded off to the nearest **rand**. (4)

[16]

QUESTION 3 [18]

3.1 A netball court with dimensions of the centre circle and semi-circles at the extreme ends are given in the diagram below.



The netball court has the following dimensions:

- Length of the court = 30,5 m
- Breadth of the court = 15,25 m
- Diameter of centre circle = 0,9 m

3.1.1 Calculate area of the Centre circle , you mat use the formula below (2)

$$Area\ of\ Circle = \pi \times radius \times radius$$

Where π ***= 3.142***

3.1.2 Calculate area of the semi circle. (3)

3.1.3 Calculate the difference between the area of the Centre circle and the area of one of the semi-circles at the extreme ends of the netball court. (2)

3.1.4 Calculate the area of the netball court. (2)

$$Area\ of\ Rectangle = Length \times Breadth$$

3.1.5 Calculate the circumference of the center circle. (2)

$$Circumference\ of\ circle = 2 \times \pi \times radius$$

Where π ***= 3.142***

3.1.7 Calculate the perimeter of the netball court (**OUTER RECTANGULAR PART)** (3)

3.2 The lines on the netball court are painted using white paint. Given that one liter of white paint covers 10m , Calculate the amount of white paint (in liters) needed to paint the lines on the netball court (**OUTER RECTANGULAR PART**). Show your calculation (4)

[18]

QUESTION 4

4.1 Mr Shibambo recorded the test results for his Grade 11 Mathematical Literacy class in terms of gender. The results are listed below.

Boys' scores						
48	56	57	58	65	66	66
68	75	77	78	81	85	96
Girls' scores						
58	75	49	79	39	99	56
67	98	89	59	75	75	

4.1.1 Arrange the girls' scores in ascending order. (1)

4.1.2 Write down the girls' modal score. (2)

4.1.3 Calculate the boys' mean score. (2)

4.1.4 Calculate the boys' median score. (2)

4.1.5 Determine the range of the girls' scores. (2)

4.1.6 Write down the probability that a girl chosen at random scored 75 for the test. (2)

4.1.7 Write down the probability that a boy chosen at random scored more than 75 for the test.

(2)

4.2 Mr Mambo won a 68 km marathon from Bisho to East London in 2014. He was a member of Maxed Elite Running Club. He received a cash prize. In 2013 the winner completed the race in 3 hours 50 minutes and 36 seconds.

Male	Running Club	Time
Marko Mambo	Maxed Elite	04:07:05
Elias Mabane	Nedbank	04:10:16
Peter Muthubi	Running	04:12:40

4.2.1 Convert 68km to m. (2)

4.2.2 Convert Mr Mambo's running time to hours. Give your answer to the nearest hour. (3)

4.2.3 Calculate Mr Mambo's average speed in kilometer per hour.You may use the formula: $\textbf{Speed} = \frac{\textbf{Distance}}{\textbf{time}}$ (3)

4.3 **GOOD BOYS CAR WASHING BAY** is in an area where water is charged according to the water tariffs structure shown in **TABLE 2** below.

Block	Usage in kilolitre (kl)	Normal Charge per kilolitre (kl) (Excluding VAT)
1	0kl – 6kl	R0,00
2	+6kl – 15kl	R9,35
3	+15kl – 30kl	R11,16
4	+30kl – 45kl	R12,53
5	+45kl – 60kl	R13,98
6	60kl+	R15,34

TABLE 2: WATER TARIFF STRUCTURE

NOTE: VAT is Value Added Tax. The VAT rate is 15%.

4.3.1 Calculate how much GOOD BOYS CAR WASHING BAY pays a month including VAT when they use 25 kl of water and give a reason why a step up (increasing block rate) system of water tariffs is used to charge water consumption other than a flat single rate. (6)

[27]

TOTAL [75]

Realogile Secondary School

MATHEMATICS LITERACY

Grade 11 Paper 1

MEMORANDUM

CODE	EXPLANATION
M	Method
MA	method with accuracy
CA	consistent accuracy
A	accuracy
C	conversion
D	define
J	Justification/ Reason/Explain
S	Simplification
RT/RD/RG	Reading from a table of a graph or a diagram or a map or plan
F	Choosing ther correct formula
SF	Substitution in correct formula
O	Opinion
P	Penalty, e.g. for no units , incorrect rounding -off e.t.c
R	Rounding -Off
NP	No Penalty for rounding -off or Omitting units

QUESTION 1

Item	SOLUTION	Explanation of marks	Marks	Level

1.1.1	1tbsp : 5ml No. Of tbsp : 60 ml No. of tbsp $= \frac{60\ ml \times 1}{5\ ml}$ ✓ No. of tbsp = 12 ✓	1M for the correct method 1A for the correct answer	2	2
1.1.2	$\frac{20}{4} = 5$ ✓ $Number\ of\ cans = 1 \times 5$ $Number\ of\ cans = 5$ ✓	1M for the correct method 1A for the correct answer	2	2
1.1.3	$^{O}F = {}^{O}C \times 1.8 + 32$ $400 = {}^{O}C \times 1.8 + 32$ ✓ $^{O}C = \frac{400 - 32}{1.8}$ ✓✓ $^{O}C = 204.4\ ^{O}C$ ✓	1SF for the correct substitution 2M for the correct method 1A for the correct answer	4	3
1.2	1lb = 0.45359 kg ✓✓ 2 oz = 0.0283 kg x 2 = 0.0566 kg ✓✓ In kg = 0.45359 kg + 0.0566 kg ✓ = 0.51019 kg ✓	4C for correct conversion 1M for the correct method 1A for the correct answer	6	4
1.3 1.3.1	1 kg cost R67	1M for the correct method	2	1

	He paid for only half a kg = 500 g Therefore $\frac{R67}{2} = R33.50$ ✓ ✓	1A for the correct answer		
1.3.2	$VAT = (33.50 + 12.59) \times \frac{14}{100}$ ✓ ✓ $VAT = 6.45$ ✓	23M for the correct method 1A for the correct answer	3	2
1.3.3	Oranges are basic while naarjies are an a more expensive altenative ✓ ✓	2A for the correct answer	2	1
1.3.4	✓ ✓	2A for the correct answer	2	1
1.3.5	Card payment ✓ ✓	2A for the correct answer	2	1
1.3.6	16:42 ✓ ✓	2A for the correct answer	2	1

QUESTION 2

Item	SOLUTION	Explanation of marks	Marks	Level
2.1 2.1.1	$Gross\ salary\ P.a = R12\ 000 \times 12$ ✓ $Gross\ salary\ P.a$ *=R144 000* ✓	1M for the correct method 1A for the correct answer	2	1

2.1.2	$Groceries = R12\,000 \times \frac{30}{100}$✓ $Groceries = R3600$ ✓ ✓	1M for the correct method 2A for the correct answer	3	1
2.1.3	*Rent : groceries* *18 : 30* $\frac{18}{6} = \frac{30}{6}$✓ 3 : 5✓	1M for the correct method 1A for the correct answer	2	2
2.1.4	*Percent Savings = 100% - 18% - 30% - 12% - 2.5% = 37.5 %*✓ ✓ ✓	1M for the correct method 2A for the correct answer	3	1
2.2 2.2.2	$\%\ Discount = \frac{400}{5599} \times 100$✓ ✓ $\%\ Discount = 7.14\%$✓	2M for the correct method 1A for the correct answer	3	3
2.2.3	$\%\ Deposit = \frac{559.90}{5599} \times 100$✓ ✓ $\%\ Discount = 10\%$✓	2M for the correct method 1A for the correct	3	3

		answer		
2.2.4	16%✓ ✓	2A for the correct answer	2	1
2.2.5	$\%\ Deposit = R5599\ -\ R559.9\ =\ R5039.1$✓ $Interest\ = 5039.1\ \times \frac{16}{100}$ = 806.25✓ Amount = R806.25 + R5039.1 = R5845.35✓ $Interest\ = 5845.35\ \times \frac{16}{100}$ = R935.25✓ Amount payable = 5845.35+ 935.25 = R6780.60✓	4M for the correct method 1A for the correct answer	5	4
2.2.6	$Monthly\ Instalment\ = \frac{R6780.60}{24}$✓ ✓ $Monthly\ Instalment\ = R282.52$✓	2M for the correct method 1A for the correct answer	3	2

QUESTION 3

Item	SOLUTION	Explanation of marks	Marks	Level

3.1.1.	January ✓ ✓	2A for the correct answer	2	1
3.1.2	Deductions = R258.20 +R4956.38 +R2582 ✓ +R1956.50 R9753.08 ✓	1M for the correct method 1A for the correct answer	2	3
3.1.3	Unemployment Insurance Fund ✓ ✓	2A for the correct answer	2	1
3.1.4	$Linda's\ share\ = R1290 \times \frac{3}{5} = R774$ ✓ ✓	2A for the correct answer	2	3
3.2 3.2.1	*Total Exp = 6000 + R1500 + R1500 = R9000* ✓ ✓ ✓	3M for the correct method 1A for the correct answer	3	2
3.2.2	*A = R9000* ✓ ✓	2M for the correct method	2	1
3.2.3	*Total Income = 6 x number of tickets* ✓ ✓	2M for the correct method	2	2
3.2.4	*150* ✓ ✓	2M for the correct method	2	1
3.2.5		5M for the correct method	5	3

	✓ ✓ ✓ ✓			

PAPER 1 LEVEL ANALYSIS GRADE 11 MATHS LITERACY

QUESTION 1[27]		
Item	Marks	Level
1.1.1	2	2
1.1.2	2	2
1.1.3	4	3
1.2	6	4
1.3.1	2	1
1.3.2	3	2
1.3.3	2	1
1.3.4	2	1
1.3.5	2	1
1.3.6	2	1
TOTAL MARKS	27	

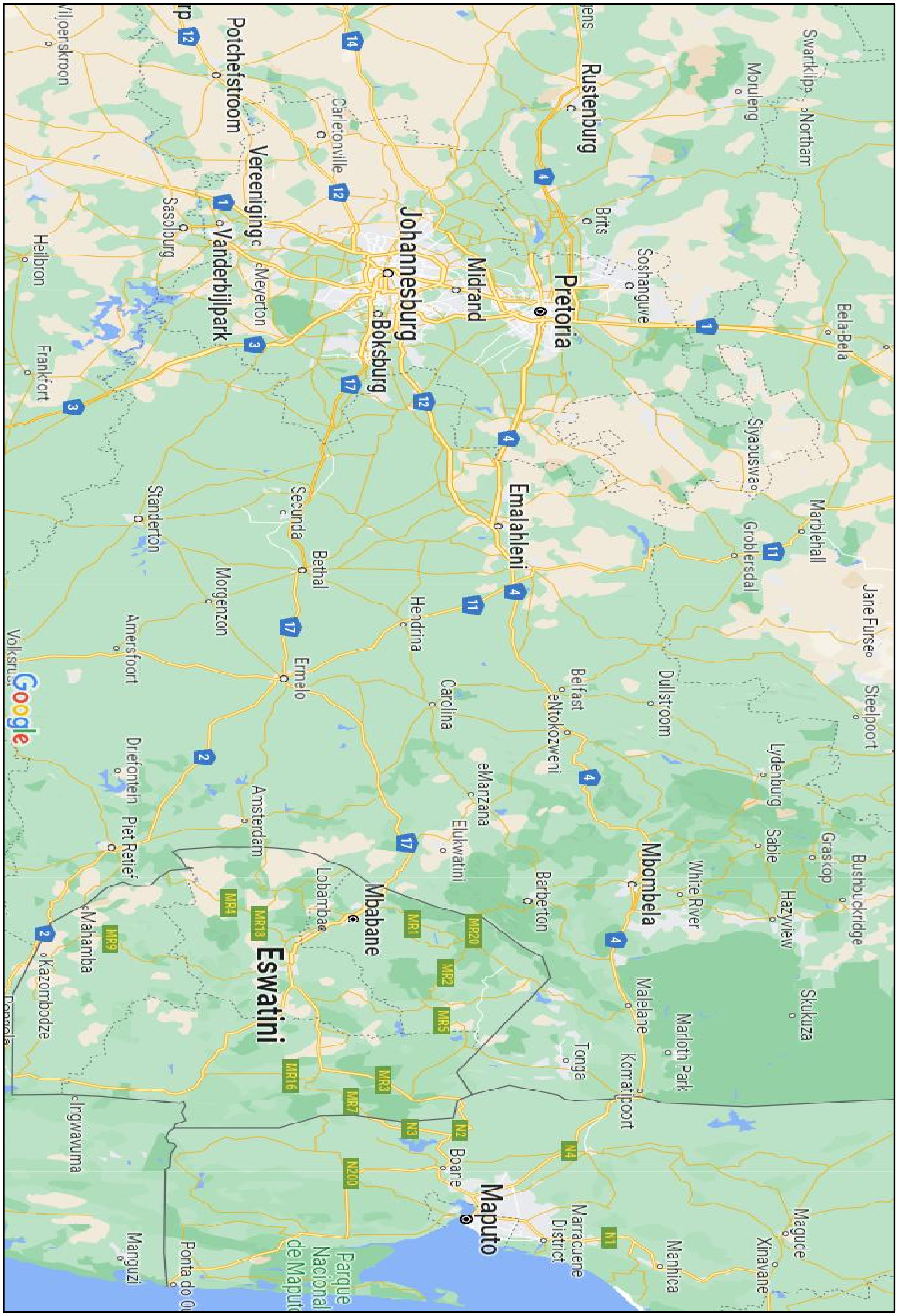
QUESTION 2[26]		
Item	Mark	Level
2.1.1	2	1
2.1.2	3	1
2.1.3	2	2
2.1.4	3	1
2.2.2	3	3
2.2.3	3	3
2.2.4	2	1
2.2.5	5	4
2.2.6	3	2
TOTAL MARKS	26	

QUESTION 3[17]		
Item	Marks	Level
3.1.1.	2	1
3.1.2	2	3
3.1.3	2	1
3.1.4	2	3
3.2.1	3	2
3.2.2	2	1
3.2.3	2	2
3.2.4	2	1
3.2.5	5	3
TOTAL MARKS	22	

	Level 1	Level 2	Level 3	Level 4
QUESTION 1	5	3	1	1
QUESTION 2	4	2	2	1
QUESTION 3	4	2	3	0

TOTAL MARKS PER	28	17	19	11
PERCENTAGE	37%	23%	25%	15%

ANNEXTURE A


Rustenburg
Pretoria
Johannesburg
Midrand
Boksburg
Soshanguve
Brits
Bela-Bela
Northam
Moruleng
Swartklip
Potchefstroom
Carletonville
Vereeniging
Vanderbijlpark
Sasolburg
Meyerton
Heilbron
Frankfort
Viljoenskroon
Emalahleni
Siyabuswa
Marblehall
Groblersdal
Jane Furse
Steelpoort
Dullstroom
Belfast
eNtokozweni
Secunda
Bethal
Standerton
Morgenzon
Hendrina
Amersfoort
Ermelo
Carolina
Lydenburg
Sabie
Graskop
Bushbuckridge
Hazyview
White River
Mbombela
Barberton
eManzana
Elukwatini
Amsterdam
Driefontein
Piet Retief
Mbabane
Lobamba
Eswatini
Mahamba
Kazombodze
Ingwavuma
Malelane
Skukuza
Marloth Park
Tonga
Komatipoort
Boane
Maputo
Marracuene District
Manhiça
Magude
Xinavane
Manguzi
Google