



**NATIONAL
SENIOR CERTIFICATE**

GRADE 11

NOVEMBER 2013

**MATHEMATICAL LITERACY P2
MEMORANDUM**

MARKS: 100

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RM	Reading from a table/Reading from a graph/Read from map
F	Choosing the correct formula
SF	Substitution in a formula
J	Justification
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding Off/Reason

This memorandum consists of 6 pages.

QUESTION 1			
1.1	1.1.1	$\begin{aligned} \text{UIF} &= 0,01 \times 6\,240 \checkmark \\ &= R62,40 \times 2 \checkmark \\ &= R124,80 \checkmark \end{aligned}$ <p style="text-align: center;">OR</p> $\begin{aligned} \text{UIF} &= 0,02 \checkmark \times 6\,240 \checkmark \\ &= R124,80 \checkmark \end{aligned}$	1:M 1:M 1:A 2:M 1:A (3)
	1.1.2	$\text{IRR} = 29,2 + \frac{99\,779,68}{3\,239,6 + \text{monthly salary}}$ $\text{IRR} = 29,2 + \frac{99\,779,68}{3\,239,6 + 6\,240} \checkmark$ $= 29,2 + 10,52572682 \checkmark$ $= 39,72572682$ $= 39,7\% \checkmark$	1:SF 1:S 1:A (3)
	1.1.3	$\begin{aligned} \text{Amount from UIF} &= 0,397 \times 6\,240 \checkmark \\ &= R2\,477,28 \checkmark \end{aligned}$	1:M 1:A (2)
	1.1.4	$\begin{aligned} \text{Number of days} &= 365 \times 3 \checkmark \\ &= \frac{1\,095}{6} \checkmark \\ &= 182,5 \\ &= 182 \text{ days} \checkmark \end{aligned}$ <p style="text-align: center;">OR</p> $\begin{aligned} \text{Number of days} &= \frac{365}{6} \checkmark \\ &= 60,833\dots \times 3 \checkmark \\ &= 182,5 \\ &= 182 \text{ days} \checkmark \end{aligned}$	1:M 1:M 1:A 1:M 1:M 1:A (3)
	1.1.5	$\begin{aligned} \text{Amount per day} &= 2\,477,28 \times 12 \checkmark \\ &= \frac{29\,727,36}{365} \checkmark \\ &= R81,44 \checkmark \end{aligned}$	1:M 1:M 1A (3)
	1.1.6	$\begin{aligned} \text{UIF for six months} &= 182 \text{ days} \times 81,44 \checkmark \\ &= R14\,822,08 \checkmark \end{aligned}$	1:M 1:A (2)
	1.1.7	$\begin{aligned} \text{Last payment} &= 2\,477,28 \times 5 \\ &= R12\,386,40 \checkmark \\ &= R14\,822,08 - R12\,386,40 \checkmark \\ &= R2\,435,68 \checkmark \end{aligned}$	1:MA 1:M 1:A (3)

1.2	1.2.1	<p>Surface Area = 2 x Area of Base + Perimeter of Base x Height</p> $= 2 \times \pi r^2 + \pi d \times h$ $= (2 \times 3,142 \times 4,75^2) + (3,142 \times 9,5 \text{ cm}) \times 17,8 \text{ cm} \checkmark\checkmark$ $= 141,78275 \text{ cm}^2 + 29,849 \text{ cm} \times 17,8 \text{ cm}$ $= 141,78275 \text{ cm}^2 + 531,3122 \text{ cm}^2 \checkmark$ $= 673,09495 \text{ cm}^2$ $= 673,09 \text{ cm}^2 \checkmark$	<p>2:SF</p> <p>1:S</p> <p>1:A</p>	(4)
	1.2.2	<p>Surface Area = 2 x Area of Base + Perimeter of Base x Height</p> $= 2 \times l \times b + 2 \times (l+b) \times h$ $= (2 \times 18,7 \times 7,2) + 2(18,7 + 7,2) \times 3,8 \checkmark\checkmark$ $= 269,28 \text{ cm}^2 + 51,8 \text{ cm} \times 3,8 \text{ cm}$ $= 269,28 \text{ cm}^2 + 196,84 \text{ cm}^2 \checkmark$ $= 466,12 \text{ cm}^2 \checkmark$	<p>2:SF</p> <p>1:S</p> <p>1:A</p>	(4)
	1.2.3	<p>Area of roll = L x B</p> $= 25 \text{ m} \times 150 \text{ cm} \checkmark$ $= 2\,500 \text{ cm} \times 150 \text{ cm} \checkmark$ $= 375\,000 \text{ cm}^2 \checkmark$ <p>Number of pencil cases = $\frac{375\,000 \text{ cm}^2}{673,09 \text{ cm}^2} \checkmark$</p> $= 557,1320329$ $= 557 \text{ pencil cases} \checkmark$ <p>No, the roll of material will not be enough. \checkmark</p>	<p>1:SF</p> <p>1:C</p> <p>1:A</p> <p>1:M</p> <p>1:A</p> <p>1:O</p>	(6)
				[33]
QUESTION 2				
2.1	2.1.1	21,1 km $\checkmark\checkmark$	2:A	(2)
	2.1.2	49 meters \checkmark	1:A	(1)
	2.1.3	<p>Highest = 200 m</p> <p>Lowest = 36 m \checkmark</p> <p>Difference = 200 m – 36 m</p> $= 164 \text{ m} \checkmark$	<p>1:RG</p> <p>1:A</p>	(2)
	2.1.4	<p>Between ± 2 and ± 4 km, \checkmark because the height increases from ± 38 m to ± 140 m (steep gradient). $\checkmark\checkmark$</p> <p>OR</p> <p>Between ± 9 and ± 13 km, \checkmark because the height increases from ± 60 m to ± 195 m (steep gradient). $\checkmark\checkmark$</p>	<p>1:A</p> <p>2:R</p>	(3)

2.2	2.2.1	2008 ✓ – 03:35:25 Three hours thirty five minutes and twenty five seconds ✓	1:A 1:A (2)
	2.2.2	2010 ✓ 03:42:19 ✓	1:A 1:A (2)
	2.2.3	In 2005 Elena's time was slower than 2004, but from 2006 to 2008 she improved on her finishing times and then from 2009 to 2010 her pace slowed down with an improvement in 2011 and then slower in 2012. ✓✓ (Accept any logical explanation.)	2:A (2)
	2.2.4	Total Time = 03:37:51 + 03:38:12 + 03:36:29 + 03:35:34 + 03:35:25 + 03:40:43 + 03:42:19 + 03:37:54 + 03:41:56 ✓ = 27h 341min 323sec ✓ = 32h 46min 23sec ✓✓	1:M 1:A 2:A (4)
	2.2.5	03:42:19 ; 03:41:56 ; 03:40:43 ; 03:38:12 ; 03:37:54 ; 03:37:51 ; 03:36:29 ; 03:35:34 ; 03:35:25 ✓ Median = 03:37:54 ✓	1:M 1:A (2)
	2.2.6	Difference = 03:42:19 – 03:35:25 ✓ = 6min 54 sec ✓✓	1:M 2:A (3)
2.3	2.3.1	It means she has 90 out of 100 chances to win the marathon. ✓✓	2:A (2)
	2.3.2	$P = \frac{90}{100} \checkmark \checkmark = 0,9 \checkmark$	1:Numerator 1:Denominator 1:Decimal (3)
			[28]

QUESTION 3			
3.1	3.1.1	Previous reading = Current reading – consumption $= 185\,523\text{ k}\ell - 30,3\text{ k}\ell \checkmark$ $= 185\,492,7\text{ k}\ell \checkmark$	1:M 1:A (2)
	3.1.2	Consumption charge $= (6 \times 0) + (9 \times 7,90) + (10 \times 8,90) + (5,3 \times 9,90) \checkmark$ $= 0 + 71,10 + 89,00 + 52,47 \checkmark$ $= R212,57 \checkmark$	1:M 1:S 1:A (3)
	3.1.3	Disposal charge = R103,32 $R103,32 = (4 \times 0) + (3 \times 3,54) + (8 \times 8,52) + (2 \times 12,27)$ $= 0 + 10,62 + 68,16 + 24,54 \checkmark$ $= R103,32$ Volume = $4 + 3 + 8 + 2 \checkmark$ $= 17\text{ k}\ell \checkmark$	1:M 1:M 1:A (3)
	3.1.4	$VAT = (212,57 + 103,32) \times 0,14$ $= R\,315,89 \times 0,14 \checkmark$ $= R\,44,22 \checkmark$	1:CA 1:CA (2)
	3.1.5	Total charge = $212,57 + 103,32 + 44,22 \checkmark$ $= R\,360,11 \checkmark$	1:CA 1:CA (2)
3.2	3.2.1	Mean = $20,8\text{ k}\ell + 44,2\text{ k}\ell + 22,5\text{ k}\ell + 21,6\text{ k}\ell + 15,4\text{ k}\ell + 22,7\text{ k}\ell$ $+ 20,4\text{ k}\ell + 25,1\text{ k}\ell + 23,6\text{ k}\ell + 24,9\text{ k}\ell +$ $\frac{21,5\text{ k}\ell + 30,3\text{ k}\ell \checkmark}{12 \checkmark}$ $= \frac{293}{12}$ $= 24,42\text{ k}\ell \checkmark$	1:M 1:M 1:A (3)
	3.2.2	$15,4\text{ k}\ell; 20,4\text{ k}\ell; 20,8\text{ k}\ell; 21,5\text{ k}\ell; 21,6\text{ k}\ell; 22,5\text{ k}\ell; 22,7\text{ k}\ell;$ $23,6\text{ k}\ell; 24,9\text{ k}\ell; 25,1\text{ k}\ell; 30,3\text{ k}\ell; 44,2\text{ k}\ell \checkmark$ Median = $\frac{22,5 + 22,7}{2}$ $= \frac{45,2}{2} \checkmark$ $= 22,6 \checkmark$	1:M 1:MA 1:A (3)
	3.2.3	Referring to the statement date, it can be that the residents were on vacation during this time. $\checkmark\checkmark$ (Accept any relevant answer.)	2:O (2)
	3.2.4	Leaking tap, underground leaking pipes, faulty water meter $\checkmark\checkmark$ Accept any relevant answer	2:O (2)
	3.2.5	Median, \checkmark because it is not distorted by the outliers of $15,4\text{ k}\ell$ and $44,2\text{ k}\ell \checkmark$ as it is the case with the mean.	2:O (2)
			[24]

QUESTION 4			
4.1	4.1.1	The dollar is stronger. ✓ You have to pay R9,04 for \$1. ✓	1:A 1:R (2)
	4.1.2	Rand value = $100 \times 9,04$ ✓ = R904 ✓	1:M 1A (2)
	4.1.3	Bank fees are charged when you change from one currency to another. ✓✓	2:A (2)
	4.1.4	Percentage = $904 - 858,80$ ✓ = $\frac{R45,20}{904} \times \frac{100}{1}$ ✓ = 5% ✓	1:M 1:M 1:A (3)
4.2	<u>Step 1</u> With the thumbs push the cover out to remove the battery. ✓✓ <u>Step 2</u> Take the battery out. ✓✓ <u>Step 3</u> With the battery compartment open and the battery removed, insert the SIM card into the slots with gold plate facing down. ✓✓ (Accept any relevant explanations.)		2:A 2:A 2:A (6)
			[15]
TOTAL:			100