higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
NQF LEVEL 4
(First paper)

14 February 2025

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/Reading from a graph/drawing
F	Choosing correct formula
SF	Substitution in formula
R/J	Reasoning/Justification
P	Penalty, e.g. for no units, incorrect rounding off etc.
R	Rounding off
MF	Manipulating Formula

This marking guideline consists of 10 pages.

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QUESTION 1	**[30]**

Question	**Solution**	**Explanation**	**Marks**
1.1	$35\%; 0{,}4; \frac{3}{7}; \frac{7}{15}$ ✓✓	1 A Answer	(2)
1.2	Financial Management✓✓	1 A Answer	(2)
1.3 1.3.1	$40 - [20 - \{14 - (16 - 6 \times 4 - 2)\}]$ $= 40 - [20 - \{14 + 10\}]$✓ $= 40 - [20 - 24]$ $= 40 + 4$✓ $= 44$✓	2 A Calculation 1 A Answer	(3)
1.3.2	$\frac{\frac{2}{3} - \frac{1}{4}}{5 \times 1\frac{1}{2}}$ $= \frac{\frac{5}{12}}{\frac{15}{2}}$ ✓ ✓ $= \frac{5}{12} \times \frac{2}{15}$✓ $= \frac{1}{18}$✓	3 A Calculations 1 A Answers	(4)
1.4	Product A $\%\ increase = \frac{30 - 15}{15} \times 100$✓ $= 100\%$✓ Product B $\%\ increase = \frac{50 - 30}{30} \times 100$✓ $= 66{,}67\%$✓ Product A has the largest increase✓	2 A Calculation 2 A Answer 1 J Answer	(5)

Question	Solution	Explanation	Marks
1.5	Number of liters of Petrol needed $= 165 \text{ km} \div 12 \text{ km per litre}$✓ $= 13{,}75 \text{ litre}$✓ Petrol Cost $= \text{R}24{,}96 \text{ per litre} \times 13{,}5 \text{ litres}$✓ $= \text{R}336{,}96$✓	1 MA Answer 2 A Calculation 1 A Answer	(4)
1.6	$1\ cm = 10\ mm$ $1\ cm^2 = 100\ mm^2$ $5\ cm^2 = 500\ mm^2$✓	1 A Answer	(1)
1.7	Ratio 10 000: 12 000: 6 000 5: 6 :3 Bushy $= \text{R}14\,350 \times \frac{5}{14}$✓ $= \text{R}5\,125$✓ Manibi $= \text{R}14\,350 \times \frac{6}{14}$✓ $= \text{R}6\,150$✓ Lemmy $= \text{R}14\,350 \times \frac{3}{14}$✓ $= \text{R}3\,075$✓	3 MA Answer 3 A Answer	(6)
1.8	Time taken $= 19{:}15$✓ $- 17{:}02$✓ $= 1\ hour\ 13\ Minutes$✓	2 MA Answer 1 A Answer	(3)
			[30]

QUESTION 2	**[30]**

Question	**Solution**		**Explanation**	**Marks**
2.1	2.1.1	$V = 34\text{cm} \times 48\text{cm} \times 30\text{cm}$ ✓ $V = 48\ 960\ \text{cm}^2$ ✓	1 A Calculation 1 A Answer	(2)
	2.1.2	$= \frac{48}{23} \times \frac{30}{15} \times \frac{34}{4}$ ✓ $\approx 2{,}1 \times 2 \times 8{,}5$ ✓ ✓ $= 2 \times 2 \times 8$ ✓ $= 32$ chocolate boxes ✓	1 MA Answer 2 A Calculation 1 A Answer 1 J Answer	(5)
2.2	2.2.1	Square ✓	1 A Answer	(1)
	2.2.2	Area of each tile $= (0{,}25\text{m})^2$ ✓ $= 0{,}0625\text{m}^2$ ✓ Area of the floor $= (2\text{m} \times 3\text{m}) + (2{,}5\text{m} \times 1{,}5\text{m})$ ✓ $= 6\text{m}^2 + 3{,}75\text{m}^2$ ✓ $= 9\text{m}^2$ ✓ Number of tiles $= \frac{\text{area of the floor}}{\text{area of the tile}}$ ✓ $= \frac{9{,}75}{0{,}0625}$ ✓ ✓ $= 156$ tiles ✓	1 SF Answer 1 A Answer 1 F Answer 1 SF Answer 1 A Calculation 1 A Answer 1 F Answer 1 SF Answer 1 A Calculation 1 A Answer	(10)
	2.2.3	Cost $= \text{R}10{,}40 \times 156$ ✓ $= \text{R}1\ 622{,}40$ ✓	1 A Calculation 1 A Answer	(2)
	2.2.4	Number of boxes $= \frac{156}{9}$ ✓ $= 17{,}33333$ ✓ ≈ 18 ✓	1 A Calculation 1 A Answer 1 A Rounding up	(3)

Question	Solution	Explanation	Marks
2.3	$= \frac{3500}{200}$ ✓ $= 17{,}5$ $\therefore 17$ boxes ✓	1 MA Answer 1 A Answer	(2)
2.4	$V = \pi r^2 h$ $= 3.14 \times 2{,}5^2 \times 18$ ✓ $= 353{,}4 cm^3$ ✓ $\therefore$ If each person has 3 full glasses, the total amount of juice for each is : $V = 353{,}4 cm^3 \times 3$ ✓ $= 1060 cm^3$ $= 1{,}06$ litres ✓ $\therefore$ For 50 people the total amount litres needed is : $= 1{,}06 \times 50$ $= 53$ litres ✓	1 SF Answer 1 MA Answer 2 A Calculation 1 A Answer	(5)
			[30]

QUESTION 3 **[30]**

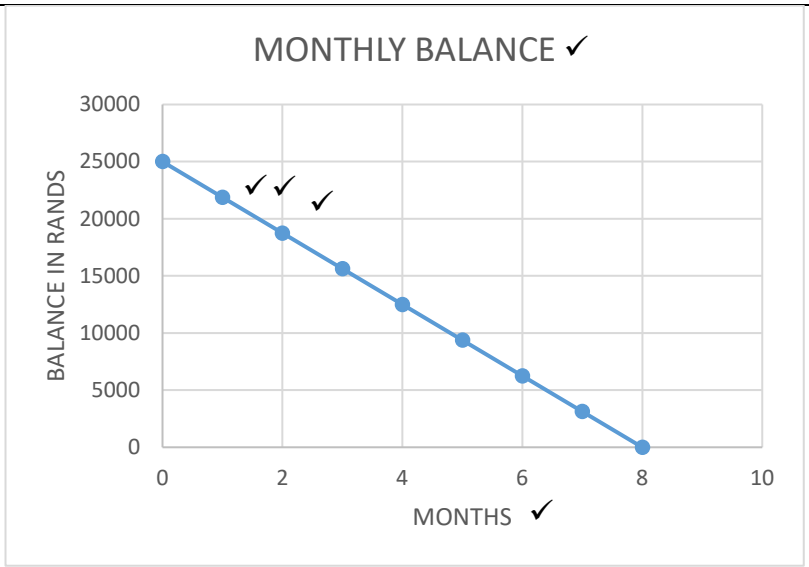
Question	Solution	Explanation	Marks
3.1	3.1.1	1 A Answer each	(4)

	Interest on outstanding balance	Outstanding total	Payment	Remaining balance
Start of loan period	R0,00	R8 000	R0,00	R8 000
End of 1st month	*a* *R160*✓	R8 160	R1 600	R6 560
End of 2nd month	R131,20	*b* *R6 691,10*✓	R1 600	R5 091,10
End of 3rd month	R101,82	R5193,02	*c* *R1 600*✓	R3 593
End of 4th month	R71,86	R3 664,88	R1 600	*d* *R2 064,88*✓

	3.1.2	Interest $= 160 + 131{,}20 + 101{,}82$✓ $=$ R393,02✓	1 MA Answer 1 A Answer	(2)

Question	Solution	Explanation	Marks
	3.1.3	By the 5th month the balance will be R506,18✓ The payment on the 6th month will be: $= \text{R}506{,}18 + \left(\frac{\text{R}506{,}18 \times 24}{100} \div 12\right)$ ✓ $= \text{R}506{,}18 + \text{R}10{,}12$ ✓ $= \text{R}516{,}30$ ✓	1 J Answer 1 MA Answer 1A Calculation 1 A Answer	(4)
3.2	3.2.1	$= \text{R}171{,}10$✓✓	2 RT Answer	(2)
	3.2.2	Cost $= (50 \times 171{,}10) + (25 \times 182{,}09)$✓ $= \text{R}8\,555 + 4\,552{,}25$✓ $= \text{R}13\,107{,}25$ ✓	1 MA Answer 1A Calculation 1 A Answer	(3)
	3.2.3	Cost for first 50 kWh $= 50 \times 171{,}10$✓ $= \text{R}8\,555$✓ Cost for 250 kWh $= 250 \times 182{,}09$✓ $= \text{R}45\,522{,}50$✓ Total Cost $= \text{R}8\,555 + \text{R}45\,522{,}50$✓ $= \text{R}54\,077{,}50$✓	3 A calculation 3 A Answer	(6)
	3.2.4	Cost $= (50 \times 171{,}10)$✓ $+ (300 \times 182{,}09)$✓ $+ (150 \times 248{,}47)$✓ $= 8\,555 + 54\,627$✓ $+ 37\,270{,}5$✓ $= \text{R}100\,452{,}50$✓	3 MA Answer 2 A calculation 1 A Answer	(6)
3.3	115% : R5 668,07 ✓ 100% : x $x = \frac{R5\,668{,}07 \times 100\%}{115\%}$ ✓ $x = \text{R}4\,928{,}76$ ✓	1 M Method 1 A Calculation 1 A Answer	(3)
			[30]

QUESTION 4	**[30]**

Question	**Solution**		**Explanation**	**Marks**
4.1	4.1.1	A = 4✓ B= R12 500✓ C= 0✓	3 A Answer	(3)
	4.1.2	8 months✓	1 RT Answer	(2)
	4.1.3		1 labelling title 3 line graph (2 for plotting and 1 for line) 1 labelling axes (no mark if one is omitted)	(5)
	4.1.4	Balance $= 25\,000✓ - (3\,125✓ \times \text{No. of months paid})✓$	3 MF Answer	(3)
	4.1.5	Indirect✓ – Outstanding amount decreases as number of months are increasing.✓	1 A Answer 1 J Answer	(2)
	4.1.6	Balance ✓ Balance depends on number of month payment was made. ✓	1 A Answer 1 J Answer	(1)
4.2	4.2.1	500 litres✓	1 RG Answer	(1)
	4.2.2	5 minutes✓	1 RG Answer	(1)
	4.2.3	100 litres✓	1 RG Answer	(1)
	4.2.4	3 minutes✓	1 RG Answer	(1)

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Question	Solution		Explanation	Marks
4.3	4.3.1	Travel Cost✓= R30✓+ (R15×No. of km travelled)✓	3 A Answer	(3)
	4.3.2	R45;✓R60;✓R75✓	1 A Answer each	(3)
	4.3.3	R15,00	2 A Answer	(2)
	4.3.4	$150 - 30 = 15x$ $x = 120 \div 15$✓ $x = 8$km✓	1 M Method 1 A Answer	(2)
				[30]

QUESTION 5	**[30]**

Question	Solution		Explanation	Marks
5.1	5.1.1	Mean of 93 $= \frac{13308}{6}$✓ $= 2218$✓	1 A Calculation 1 A Answer	(2)
	5.1.2	Mean of 95 $= \frac{13086}{6}$✓ $= 2181$✓	1 A Calculation 1 A Answer	(2)
	5.1.3	Median of 93 $= \frac{2230 + 2264}{2}$✓ $= 2247$✓ Median of 95 $= \frac{2191 + 2225}{2}$✓ $= 2208$✓	2 A Calculations 2 A Answers	(4)
	5.1.4	Mean would be the best measure of central tendency since all values are used when calculating it.✓✓ (Accept any relevant reason)	1 A Answer 1 J Answer	(2)

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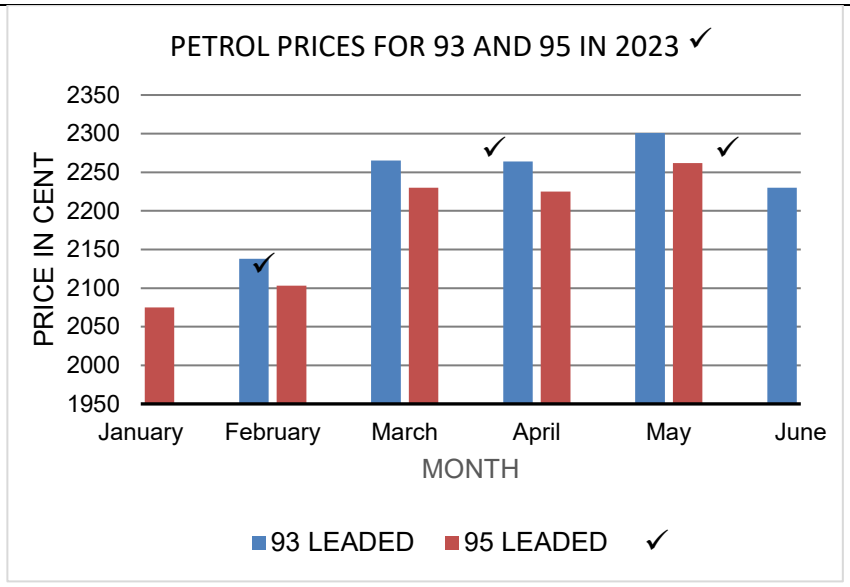
Question	Solution	Explanation	Marks
	5.1.5 	1 A Title 1 A Axes 3 A Bars	(5)
5.2	5.2.1 Number of adults and children = 16 + 4 = 20✓	1 RG Answer	(1)
	5.2.2 Difference = 25 – 4 = 21✓	1 RG Answer	(1)
	5.2.3 Highest Serving number for adults = 16-20✓	1 RG Answer	(1)
	5.2.4 Ratio 4: 16✓ 1: 4✓	1 A answer 1 S Answer	(2)
	5.2.5 Percentage $= \frac{8}{22} \times 100$ $= 36\%$✓	1 A answer	(1)
	5.2.6 Percentage $= \frac{4-16}{16} \times 100$✓ $= 75\%$ decrease✓	1 A Calculation 1 A answer	(2)

Question	Solution		Explanation	Marks
5.3	5.3.1	Most common number of bathrooms = 2✓	1 A Answer	(1)
	5.3.2	Number of people with 1 bathroom $= \frac{100}{360} \times 90$✓ $= 25$✓	1 A Calculation 1 A Answer	(2)
	5.3.3	Number of people with 3 and 4 bathrooms $= \pm 25$✓	1 A Answer	(1)
5.4	5.4.1	Probability of not level 2 student $= \frac{270}{510}$ *or* $\frac{9}{17}$ ✓	1 A Answer	(1)
	5.4.2	Probability of level 4 student selected London $= \frac{80}{510}$ *or* $\frac{8}{51}$ ✓	1 A Answer	(1)
	5.4.3	Probability of level 2 student selected Madrid $= \frac{70}{510}$ *or* $\frac{7}{51}$ ✓	1 A Answer	(1)
				[30]

TOTAL:	**150**

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