higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
NQF LEVEL 4
(First paper)

(10401034)

5 November 2024

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD	Reading from a table/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 9 pages.

Copyright reserved

QUESTION 1	

QUESTION	**SOLUTION**	**EXPLANATION**	**MARKS**
1.1	$\frac{4}{10}; \frac{22}{50}$;✓ 45,2%; 0,463✓ *Any 2 correct consecutive numbers.	2 A	(2)
1.2	$= 1{,}5 \times 1\,000$✓ $= 1\,500$ g✓	1 C 1 A	(2)
1.3	Cost per gram $= \frac{219{,}95}{1\,500}$✓ $= R0{,}15/g$✓ OR 15c	1 MA 1 A	(2)
1.4 1.4.1	$[72 - 12 \div 3 - 2] + (18 - 6) \div 4$ $= [72 - 4 - 2] + (18 - 6) \div 4$ $= 66$✓ $+ 12 \div 4$ $= 66 + 3$✓ $= 69$✓ *Answer only (1/3)	1 M (66) 1 M (3) 1 A	(3)
1.4.2	$= 8 + \frac{3}{\sqrt[3]{27}}$ ✓ $= 8 + \frac{3}{3}$ ✓ $= 8 + 1$✓ $= 9$ ✓ *Answer only (1/4)	1 A (8) 1 M 1 M 1 A	(4)

QUESTION	SOLUTION	EXPLANATION	MARKS
1.5	Price $= \text{R}12{,}80\checkmark \times \frac{93}{100}\checkmark$ $= \text{R}11{,}90\checkmark$ OR Price = R12,80 – (7% × R12,80) = R12,80 – R0,90 = R11,90	2 M 1 A	(3)
1.6	15:00 ✓✓	2 A	(2)
1.7	16:00 + ✓8 hrs ✓ = 00:00 / midnight / 12:00 a.m ✓	2 M 1 A	(3)
1.8	$°\text{F} = (°\text{C} \times 1{,}8) + 32°$ $= (24° \times 1{,}8) + 32°$ ✓ $= 75{,}2°\text{F}$ ✓	1 SF 1A	(2)
1.9	Ratio $= 5 : 3$ $\therefore 5 + 3 = 8\checkmark$ Bushy: $= 10\,000 \times \frac{5}{8}\checkmark$ $= \text{R}6\,250\checkmark$ Palesa: $= 10\,000 \times \frac{3}{8}$ $= \text{R}3\,750\checkmark$	1A 1 M 1 A 1 A	(4)
1.10	$3\% \times \checkmark 120\ km/h$ ✓ $= 3{,}6\ km/h$ ✓	2 MA 1 A	(3)
			[30]

QUESTION 2	

QUESTION		**SOLUTION**	**EXPLANATION**	**MARKS**
2.1	2.1.1	Perimeter of the shadow $= 2 \times \text{length} + 2 \times \text{width}$ $= 2 \times 43 + 2 \times 59$✓✓ $= 204$ m✓	 1 SF; 1M 1 A	(3)
	2.1.2	Area of the shadow $= \text{length} \times \text{width}$ $= 43$ m $\times 59$ m✓ $= 2\,537$✓ m^2✓	 1 SF 1 A; 1U	(3)
	2.1.3	Height of building $Height^2 = (349\ m)^2 - (43\ m)^2$✓ $= 121\,801\ m^2 - 1\,849\ m^2$✓ $Height = \sqrt{119\,952\ m^2}$✓ $Height = 346{,}34\ m$✓	 1 SF 1 M 1 M 1 A	(4)
2.2	2.2.1	$Radius = 8\ cm \div 2$✓ $= 4\ cm$✓	1M 1 A	(2)
	2.2.2	Circumference of the top of the can $= 2 \times 3{,}14 \times 4$✓ $= 25{,}12\ cm$✓	 1 SF 1 A	(2)
	2.2.3	Volume of a can $600 = 3{,}14 \times 4^2 \times \text{height}$ ✓ Height $= \frac{\text{Volume}}{3{,}14 \times \text{radius}^2}$ ✓ $= \frac{600}{3{,}14 \times 4^2}$✓✓ $= 11{,}94\ cm$	 1 SF 1 F 2M	(4)
	2.2.4	Total surface area of a can $= 2 \times 3{,}14 \times \text{radius} \times \text{height} + 2 \times 3{,}14 \times \text{radius}^2$ $= 2 \times 3{,}14 \times 4 \times 11{,}94$✓ $+ 2 \times 3{,}14 \times 4^2$✓ $= 400{,}41\ cm^2$✓	 1 SF; 1 MCA 1 CA	(3)

QUESTION	SOLUTION		EXPLANATION	MARKS
2.3	Length: $= \frac{60}{7,5}$ ✓ $= 8$ tins✓ Width: $= \frac{45}{7,5}$ $= 6$ tins✓ Height: $= \frac{30}{10}$ $= 3$ tins✓ Number of tins in the box: $= 8 \times 6 \times 3$✓ $= 144$✓	$= \frac{60}{7,5} \times \frac{45}{7,5} \times \frac{30}{10}$ ✓✓✓ $= \frac{60 \times 45 \times 3}{7,5 \times 7,5}$ ✓ $= \frac{8100}{56,25}$ ✓ $= 144$ ✓	1 M 1 A 1 A 1 A 1 MA 1 A	(6)
2.4	300 m = 300 000 mm ✓ 12 mm : 300 000 mm (÷ 12) ✓ ∴ 1 : 25 000✓		1 C 1 M 1 A	(3)
				[30]

QUESTION 3

QUESTION		SOLUTION	EXPLANATION	MARKS
3.1	3.1.1	(250 ✓; 3 000✓)	2 RG	(2)
	3.1.2	251 compact discs✓✓	2 RG	(2)
	3.1.3	It will be a net loss✓	1 A	(1)
	3.1.4	A✓✓	2 RG	(2)
	3.1.5	B✓✓	2 RG	(2)
	3.1.6	±R4 800✓✓	2 RG	(2)
	3.1.7	±R3 600✓✓	2 RG	(2)

Copyright reserved

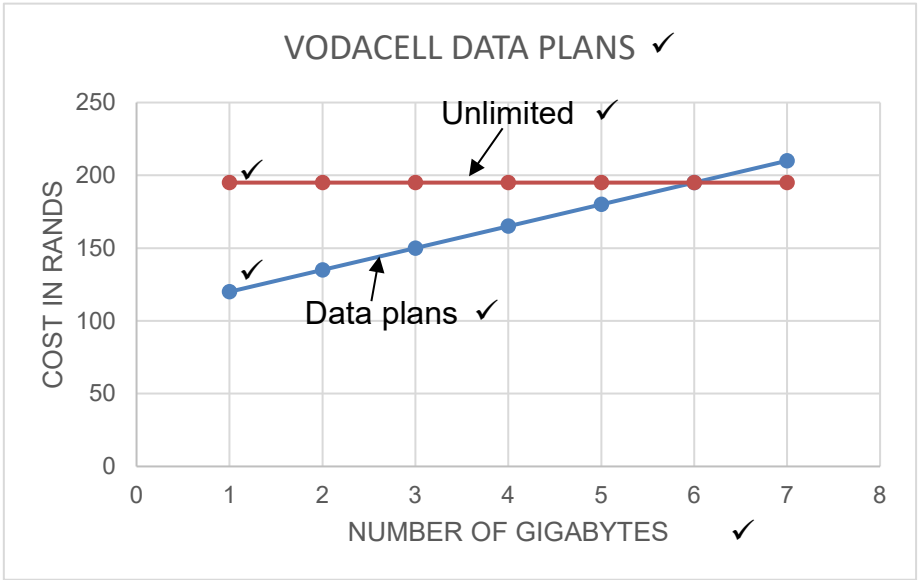
QUESTION		SOLUTION	EXPLANATION	MARKS
	3.1.8	Estimated Total Profit = R4 800 – R3 600✓ = R1 200✓	CA 3.1.6 & 3.1.7 1 MA 1 A	(2)
	3.1.9	Total Cost = R2 000✓✓ R2 000 is a fixed cost	2 A	(2)
	3.1.10	Total income = R0,00✓✓	2 A	(2)
3.2	**ANSWER SHEET**			

	SIMPLE INTEREST ACCOUNT		COMPOUND INTEREST ACCOUNT	
	INTEREST EARNED AND PAID OUT TO CLIENT	BALANCE	INTEREST EARNED	BALANCE
DEPOSIT		**R5 000**✓		**R5 000**
AFTER 1 YEAR	**R750**✓	R5 000	R750	R5 750
AFTER 2 YEARS	R750	R5 000	**R862,50**✓	R6 612,50
AFTER 3 YEARS	R750	R5 000	R991,88	**R7 604,38**✓

1 A Answer each (4)

3.3	3.3.1	R81,70✓	1 RT	(1)
	3.3.2	= (R81,70 × 36) – R2000 ✓ = R2941,20 – R2000 ✓ = R941,20 ✓	1 MA 1 M 1 A	(3)
	3.3.3	= R83,90✓ × 24✓ = R2 013,60✓ *If R2 013,6 (deduct 1 mark)	1 RT; 1 MA 1 A	(3)
				[30]

QUESTION 4

QUESTION		SOLUTION	EXPLANATION	MARKS
4.1	4.1.1	<table><tr><td>NUMBER OF GIGABYTES</td><td>1</td><td>2</td><td>3</td></tr><tr><td>COST PER MONTH (R)</td><td>120✓</td><td>135✓</td><td>150✓</td></tr></table>	3 A (1 × 3)	(3)
	4.1.2	✓ ✓ ✓ Cost = R105 + R15 × number of gigabytes	3 A	(3)
	4.1.3	Cost = R180✓✓	2 A	(2)
	4.1.4	More than 6 gigabytes✓✓	2 A	(2)
	4.1.5		1 Heading 1 Correct Graph of Unlimited 1 Unlimited Label 1 Correct Graph of Limited to 7 1 Limited Label 1 Label of both axes	(6)
	4.1.6	Unlimited Data Plan: Constant relationship✓– Cost remains constant/Cost remains the same regardless of number of gigabytes used.✓ Limited Data Plan: Increasing relationship✓ – Cost increases as number of gigabytes increases. ✓	1 A 1 R/J 1 A 1 R/J	(4)
	4.1.7	R195✓✓	2 RG	(2)

QUESTION		SOLUTION	EXPLANATION	MARKS
4.2	4.2.1	Number of hours ✓✓	2 RT	(2)
	4.2.2	A = 16 hours ✓✓	2 A	(2)
	4.2.3	B = 6 painters ✓✓	2 A	(2)
	4.2.4	Indirect / Inverse Relationship ✓✓	2 A	(2)
				[30]

QUESTION 5	

QUESTION		SOLUTION	EXPLANATION	MARKS
5.1	5.1.1	Mean score of Bokke $= \frac{208}{7}$ ✓✓ $= 29{,}71$✓	1 Numerator 1 Denominator 1 A	(3)
	5.1.2	Median score of All Blacks 11; 13; 28; 44; 71; 73; 96✓ $= 44$✓	1 Order 1 A	(2)
	5.1.3	Range of All Blacks $= 85$ Range of Bokke $76 - 8$ $= 68$✓ Difference $= 85 - 68$✓ $= 17$ ✓	1 A 1 M 1 A	(3)

*** Penalise ONCE throughout, where applicable, if answer does not contain 'million'.**

5.2	5.2.1	Total Sales first quarter $= R700$ million✓	1 A	(1)
	5.2.2	Northern region sales third quarter $= R250$ million✓	1 A	(1)
	5.2.3	Eastern region sales third quarter $= 580 - 420$✓ $= R160$ million✓	1 M 1 A	(2)

QUESTION		SOLUTION	EXPLANATION	MARKS
	5.2.4	Total amount of sales for 2022 $= 700✓ + 680✓ + 820✓ + 720✓$ $= \text{R}2\,920\text{ million}✓$	 4 M 1 A	 (5)
	5.2.5	Eastern Region✓ $= 250 - 100$ $= \text{R}150\text{ million}✓$	1 A 1 A	 (2)
	5.2.6	West✓ and South✓	2 A (1 × 2)	(2)
	5.2.7	Percentage Increase $= \frac{820 - 680}{680}✓ \times 100✓$ $= 20{,}59\%✓$	 2 M 1 A	 (3)
5.3	5.3.1	(1, 6); (6, 1); (2, 3); (3, 2) Probability getting six as a product $= \frac{4}{36}\ or\ \frac{1}{9}✓✓$	 1 Numerator 1 Denominator	 (2)
	5.3.2	(1, 1); (1, 2); (2, 1); Probability getting sum ≤ 3 $= \frac{3}{36}\ or\ \frac{1}{12}✓✓$	 1 Numerator 1 Denominator	 (2)
5.4		Probability $= \frac{154}{200}\ or\ \frac{77}{100}✓✓$	 1 Numerator 1 Denominator	 (2)
				[30]

TOTAL:	**150**

Copyright reserved