higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
NQF LEVEL 3
(First paper)

4 November 2024

SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD/RM	Reading from a table/graph/drawing/document/map
F	Choosing correct formula
SF	Substitute into formula
R/J	Reasoning/Justification
P	Penalty – no units, incorrect rounding off
R	Rounding off
E	Explanation
U	Unit
MF	Manipulation of formula

This marking guideline consists of 9 pages.

Copyright reserved

QUESTION 1

Question	Solution	Explanation	Marks
1.1	1.1.1 $= 100 - 87{,}23$ $= 12{,}77 \text{ or } 12\frac{77}{100}$✓	1 A answer	(1)
	1.1.2 $= (4600 \div 25) + 5$✓ $= 184 + 5$ $= 189$✓	1 A simplifying 1 A answer	(2)
	1.1.3 $= \frac{27}{5} + \left(\frac{9-1}{3}\right)$ $= \frac{27}{5} + \frac{8}{3}$ $= \frac{27(3) + 8(5)}{15}$✓ $= \frac{81+40}{15}$ $= \frac{121}{15} \text{ or } 8\frac{1}{15} \text{ or } 8{,}07$✓	✓✓ $5\frac{2}{5} + \frac{8}{3}$ $= 5\frac{2}{5} + 2\frac{2}{3}$ $= (5+2) + \left(\frac{2}{5} + \frac{2}{3}\right)$✓ $= 7 + \frac{16}{15}$ $= 7 + 1\frac{1}{15}$ $= 8\frac{1}{15} \text{ or } \frac{121}{15} \text{ or } 8{,}07$✓	1 A calculation 1 A answer	(2)
1.2	1.2.1 Five minutes past/after nine		1 A answer	(1)
	1.2.2 $= 9\text{H}05 + 3\text{H}20$✓ $= 12\text{H}25$ or in words ✓		1 A calculations 1 A answers	(2)
1.3	1.3.1 Post Office and Alpine Centre✓		1 A answer	(1)
	1.3.2 $= 58 \text{ m} - 29 \text{ m}$✓ $= 29 \text{ m}$✓		1 A calculation 1 A answer	(2)
1.4	1.4.1 $= 2\frac{1}{4} \times \frac{9}{1}$ $= \frac{9 \times 9}{4}$ $= \frac{81}{4} \text{ or } 20\frac{1}{4} \text{ or } 20{,}25 \text{ ltrs}$✓	$= 2{,}25 \times 9$✓ $= 20\frac{1}{4} \text{ or } \frac{81}{4} \text{ or } 20{,}25$ ✓	1 MA answer 1 A answer	(2)

	1.4.2	$= \frac{81}{4} \times \frac{1000}{1}$ ✓ $= \frac{81000}{4}$ ✓ $= 20250\text{ml}$	$= 20{,}25 \times 1000$ ✓ $= 20250\text{ml}$ ✓	1 A calculation 1 CA answer	(2)

1.5	1.5.1	$= \frac{2}{5} \times \frac{2500}{1}$ $= 2 \times 500$ $= 1000$ ✓ $\therefore 2500 - 1000 = 1500$ $\therefore 1500\text{ males}$ ✓	$= \frac{3}{5} \times \frac{2500}{1}$ ✓ $= 3 \times 500$ $= 1500\text{ males}$ ✓	1 SF answer 1 A answer	(2)

	1.5.2	$= \frac{2}{5} \times \frac{100}{1}$ ✓ $= \frac{200}{5}$ $= 40\%$ ✓	1 A calculation 1 A answer	(2)

1.6	1.6.1	$\text{speed} = \frac{452\text{km}}{5\text{h}}$ ✓ $= 90\frac{2}{5}\text{ km/h or } 90{,}4\text{km/h}$ ✓ $\approx 90\text{km/h}$	1 A calculation 1 A answer	(2)

	1.6.2	$t_1 = \frac{226\text{km}}{100\text{km/h}}$ $= 2{,}26\text{ h}$ ✓ $t_2 = \frac{226\text{km}}{113\text{km/h}}$ ✓ $= 2\text{h}$ $\text{total time} = 4{,}26\text{h}$ ✓✓ $= 4\text{h } 15{,}6\text{min}$ ✓✓ $\approx 4\text{h}16\text{min}$ ✓ $\text{time of arrival} = 12\text{h}16\text{min}$ ✓✓	1 A answer t_1 1 A answer t_2 1M 1A 1M 1 A 1 Rounding 1 Addition 1 A	(9)
				[30]

Copyright reserved

QUESTION 2				
Question	**Solution**		**Explanation**	**Marks**
2.1	2.1.1	True / T ✓	1 A answer	
	2.1.2	False / F ✓	1 A answer	
	2.1.3	True / T ✓	1 A answer	
	2.1.4	False / F ✓	1 A answer	
	2.1.5	True / T ✓	1 A answer	
			(5 × 1)	(5)
2.2	2.2.1	$P = 2(4,8m) + 2,6m + 2(2,2m) + 7m$ ✓ $= 9,6m + 2,6m + 4,4m + 7m$ ✓ $= 23,6m$ ✓	1 M method 1 A calculation 1 A answer	(3)
	2.2.2	$A_T = (4,8 \times 4,8)$ ✓ + $(2,2 \times 2,2)$ ✓ $A_T = 23,04$ ✓ + $4,84$ ✓ $A_T = 27,88$ ✓ m^2	2 SF 2 A calculation 1 A answer	(5)
2.3	2.3.1	$C = 2 \times 3,14 \times 3,6m$ ✓ $= 22,608$ ✓ $\approx 23m$ ✓	1 SF answer 1 A calculation 1 A answer	(3)
	2.3.2	$D = 6m + 2(0,6m)$ $= 6m + 1,2m$ ✓ $= 7,2m$ ✓	1 MA Answer 1 A Answer	(2)
	2.3.3	$A = 3,14 \times (3m)^2$ ✓ $= 3,14 \times 9m^2$ ✓ $= 28,26$ ✓ m^2 ✓ [Penalise units]	1 SF answer 1 A calculation 1 A answer 1 A units	(4)

2.4	2.4.1	South-East	1 A answer	(1)

	2.4.2	$1 : 10\ 000\ 000$ $15 : x$✓ x = 150 000 000 mm x = 150 km✓	 1 M 1 A answer	 (2)

	2.4.3	$x^2 = 283^2 + 394^2$ $x = \sqrt{80\ 089 + 155\ 236}$✓ x = 485,103✓ x = 485km✓	 1 SF Answer 1 A Answer 1 A Answer	 (3)

	2.4.4	$394 : 27min$ $283 : x$ x = 283 × 27 ÷ 394✓ x = 19,39 *min*✓	 1 M 1 A Answer	 (2)
				[30]

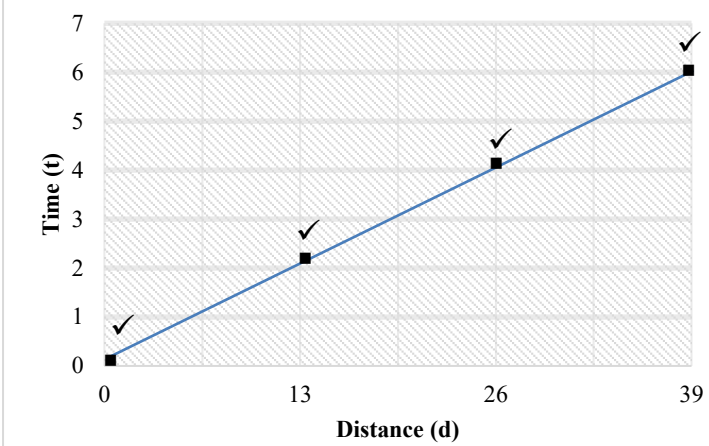
QUESTION 3

Question	**Solution**		**Explanation**	**Marks**
3.1	3.1.1	A = R7400 + R7700✓ A = R15 100✓ B = R10000 – (R1500 + R500) ✓ B = R8 000✓ C = R11300 – (R9000 + R850) ✓ C = R1 450✓ D = R15100 – R11300✓ D = R3 800✓	1 M method 1 A answer 1 M method 1 A answer 1 M method 1 A answer 1 M method 1 A answer	 (8)
	3.1.2	The expenditure was more than the income or the income was less than the expenditure.✓✓	2 J answer	(2)
	3.1.3	Nett Income✓= Income✓– Expenses✓ **OR** Income✓= Nett Income✓+ Expenses✓ **OR** Expenses✓= Income✓– Nett Income✓	1 A -each variable correctly positioned in the **correct equation**	(3)
	3.1.4	Expenses = R8 200 – (– R400)✓ Expenses = R8 600✓	1 M method 1 A answer	(2)

3.2	3.2.1	Cost = R130,00 (Network availability Charge)✓	1 RT answer	(1)
	3.2.2	Cost = R130,00✓+ (2kℓ × R24,35) ✓ Cost = R178,70✓	2 MA answer 1 A answer	(3)
	3.2.3	VAT = R130,00✓× 0,15✓ VAT = R19,50✓	2 MA answer 1 A answer	(3)
	3.2.4	= R130,00✓+ (9kℓ × R24,35) ✓+ (5kℓ × R32,96) ✓ = R130,00 + R219,15 ✓+ R164,80✓ = R513,95✓	3 M method 2 A answer 1 A answer	(6)
	3.2.5	The municipality uses a sliding scale for water consumption to prevent people from using more water.✓✓	2 J answer	(2)
				[30]

QUESTION 4

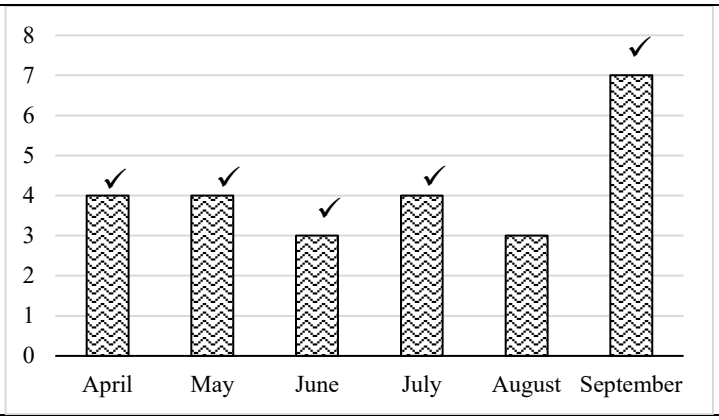
Question	Solution		Explanation	Marks
4.1	4.1.1	Samsung 30%✓ Apple 5% ✓	1 MA answer 1 A answer	(2)
	4.1.2	Samsung was more popular,✓ because it remains at a higher percentage✓ based on product holders.✓	3 J answer	(3)
	4.1.3	100% – (35% +20%)✓ = 45% ✓	1 MA answer 1 A answer	(2)
	4.1.4	Between 2020 and 2021✓✓	2 A answer	(2)
	4.1.5	25% of 120✓ $= \frac{25 \times 120}{100}$✓ = 30 employees✓	1 MA answer 1 A calculation 1 A answer	(3)
4.2	4.2.1	a) 0✓ b) 2✓ c) 26✓	1 A answer each	(3)

	4.2.2		1 A answer each for coordinate of points 1 A answer graph	(5)
	4.2.3	a) Time – independent variable✓ b) Distance – dependent variable✓	1 A answer each	(2)
	4.2.4	Constant difference, because when we subtract the first term from the second term the difference remains the same.	3 A answer	(3)
4.3	4.3.1	$c = 120n$✓✓	2 A answer	(2)
	4.3.2	$c = 120(7) \times 3$✓ $= 840 \times 3$✓ $= 2\ 520$ ∴ The cost will be R2 520.✓	1 SF answer 1 A calculation 1 CA answer	(3)
				[30]

QUESTION 5

Question	Solution	Explanation	Marks
5.1	5.1.1 September✓	1 RT Answer	(1)
	5.1.2 7✓	1 RT Answer	(1)
	5.1.3 September✓	1 RT Answer	(1)
	5.1.4	1 A answer each correct tally	(3)

Month	Tally
April	////
May	////
June	/// ✓
July	//// ✓
August	///
September	~~////~~ // ✓

	5.1.5		1 A answer any of 5 correct bar	(5)
5.2	5.2.1	a) 3✓ b) 18✓	1A answer each	(2)
	5.2.2	$= 3 + 4 + 9 + 5 + 2 + 1 + 2$✓ $= 26$✓	1 A calculation 1 A answer	(2)
	5.2.3	07:40✓✓	1 A answer	(1)
5.3		$\therefore \frac{123 + 186 + 7 + x}{4} = 94$✓ $\therefore 123 + 186 + 7 + x = 376$✓ $\therefore 316 + x = 376$ $\therefore x = 376 - 316$✓ $= 60$	1 MA answer 1 CA answer 1 A calculation 1 A answer	(4)
5.4	5.4.1	$\frac{1}{2000}$✓	1 A answer	(1)
	5.4.2	$\frac{1}{2000}$ $= 0{,}0005$✓✓		(2)
	5.4.3	$= 5 \times \frac{1}{2000}$✓ $= \frac{5}{2000}$✓ $= \frac{1}{400}$✓	1 MA answer 1 A answer 1 S answer	(3)
	5.4.4	$= \frac{1}{400} \times 100$✓ $= \frac{1}{4}\%$✓or $0{,}25\%$✓	1 MA answer 1 A answer	(2)

5.5	$= \frac{3}{6}$ ✓ $= \frac{1}{2}$ ✓	1 A answer 1 S answer	(2)
			[30]

TOTAL:	**150**

Copyright reserved