higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
(Second paper)
NQF LEVEL 4

23 November 2020

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	Substitution in formula
R/J	Reasoning/Justification
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
E	Explanation
CP	Correct plotting
U	Units

This marking guideline consists of 7 pages.

Copyright reserved

QUESTION 1

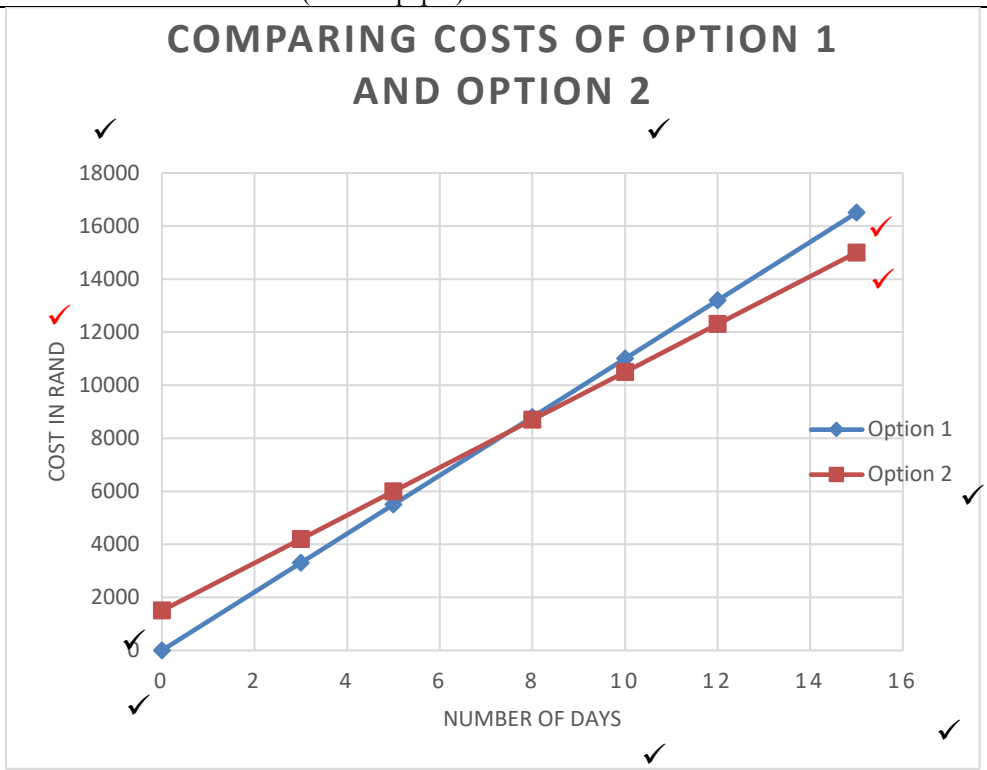
QUESTION		SOLUTION	EXPLANATION	
1.1	1.1.1	Total expenditure = 21 850 + 7 500 + 3 150 + 4 200 + 1 800 + 2 500✓ = 41 000✓ Parent's contribution = 41 000 – (15 000 + 10 000 + 4 000)✓ = 12 000✓	1M 1A 1M 1A	(4)
	1.1.2	Sports World Sponsorship = 50% of 15000 = R 7500 ✓ Netballers Sponsorship = 85% of 10000 ✓ = R 8500 ✓ Income from Sponsorship = R 7500 + R 8500 = R 16000 ✓	1A 1M 1A 1A	(4)
	1.1.3	a) The transport cost is R1 250 more than expected.✓	1A	(1)
		b) Actual transport cost = 21 850 + 1 250✓ = R23 100✓	1M 1A	(2)
1.2	1.2.1	Total loan = R10 000✓ Number of years = 3 years✓	1RG 1RG	(2)
	1.2.2	a) The club pays = R316,17 × 36✓ = R11 382,12✓	1M 1A	(2)
		b) Interest = 11 382,12 – 10 000✓ = R1 382,12✓	1M 1A	(2)
	1.2.3	They have to find a bank that charges a lower interest rate.✓✓ Or They would need to negotiate a lower interest rate.	2A	(2)
1.3		Amount they will pay = 540 × 20✓ = R10 800✓ Amount they will save = 11 382.12 – 10 800✓ = R582.12✓ The club will save R582,12.	1M 1A 1M 1A	(4)
1.4		Daily: 12 × 6✓× 4✓ = R288✓ Weekly: 100 × 4 ✓= R400✓ Monthly: R340✓ The daily ticket will work out cheaper.✓	3MA 2MA 1RT 1R/J	(7)

1.5	1.5.1	63 853 + 31% of taxable income above 305 850✓ = 63 853 + 31% of (386 000 – 305 850)✓ = 63 853 + 31% × 80 150✓ = 63 853 + 24 846,50 = 88 699,50✓ 88 699,50 – 14 220✓ = R74 479,50✓	1RT 1M 1MA 1A 1M 1A	(6)

QUESTION		SOLUTION	EXPLANATION	
	1.5.2	a) He actually paid 6 241 × 12✓ = 74 892✓ Difference = 74 892 – 74 479,50✓ = R412,50✓	1M 1A 1MA 1A	(4)
		b) SARS will refund him✓	1R/J	(1) **[41]**

QUESTION 2

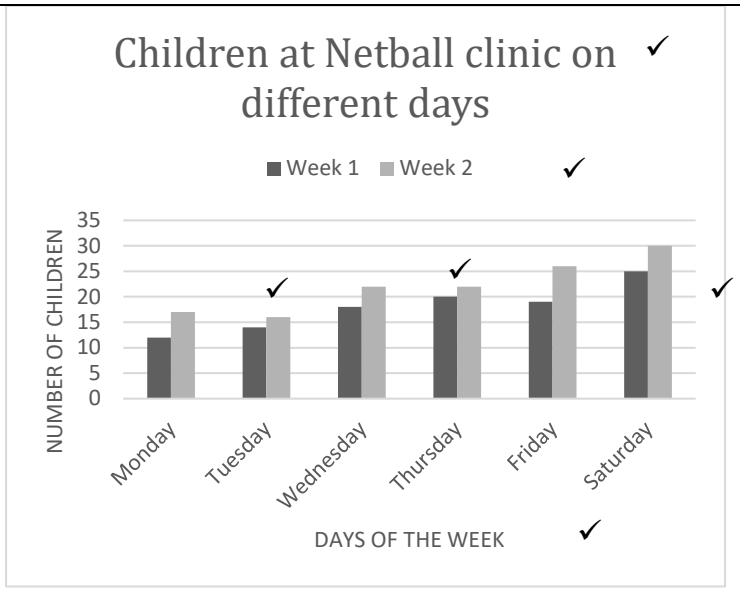
QUESTION		SOLUTION	EXPLANATION	
2.1	2.1.1	A = 5 500 ÷ 1 100✓ = 5 days✓ **OR** A = (6 000 – 1 500) ÷ 900✓ = 5 days✓ B = 1 100 × 8✓ = R8 800✓ C = 1 500 + (900 × 12)✓ = R12 300✓	1M 1A 1M 1A 1M 1A 1M 1A	(6)

	2.1.2	 1 Heading 1 Label x-axis 1 Appropriate scale x-axis 1 (0;0) 1 (0; 1 500) 1 Legend/Label graphs 1 Label y-axis 1 Appropriate scale y-axis 1 (15; 16 500) 1 (15; 15 000)	(10)

QUESTION		SOLUTION	EXPLANATION	
	2.1.3	Cost = 1 100 ✓× number of days✓	2A	(2)
	2.1.4	Cost = 1 500 ✓+ 900✓× number of days✓	3A	(3)
	2.1.5	(a) = 8 ✓ (b) = 1✓	1RG 1RG	(2)
2.2	2.2.1	Graph A.✓ It is a constant✓ amount of R 1 100✓	1RG; 2RJ	(3)
	2.2.2	Amount per child = 500 ÷ 4✓✓ = R125✓ (Any TWO correct readings from the graph)	1RG; 1M 1A	(3)
	2.2.3	9 ✓✓	2RG	(2)
	2.2.4	Income = 15 × 125✓ = R1 875✓ Profit = 1 875 – 1 100✓ = R775✓ Accept and award full marks if student reads the income value from the graph and does the correct profit calculation.	1M 1A 1MA 1A	(4) **[35]**

Copyright reserved

QUESTION 3

QUESTION		SOLUTION	EXPLANATION	
3.1	3.1.1		1 Heading 1 Labels both axes 1 Legend/bars labelled 3 Correct bars (1 mark 2 categories correct)	(6)
	3.1.2	% of children on Saturday $\frac{55}{241} \times 100$✓ = 22,82%✓ % of children on Monday $\frac{29}{241} \times 100$✓ = 12,03%✓ Difference = 22,82% - 12,03% ✓= 10,79% ✓	1M 1A 1M 1A 1M 1A	(6)

QUESTION		SOLUTION	EXPLANATION	
	3.1.3	Saturdays are much more popular than Mondays.✓✓	2R/J	(2)
	3.1.4	<table><tr><th>CENTRAL TENDENCY</th><th>SPREAD</th></tr><tr><td>Mean✓</td><td>Range✓</td></tr><tr><td>Median✓</td><td></td></tr><tr><td>Mode✓</td><td></td></tr></table>	4A	(4)
	3.1.5	a) Mean Week 1 = $\frac{108\ ✓}{6\ ✓}$ = 18✓ Week 2 = $\frac{133\ ✓}{6}$ = 22,17 or 22✓ Mode Week 1 = No mode✓ Week 2 = 22✓	2RT 1A 1RT 1A 1A 1A	(7)
		b) The mean.✓ It gives an average of the week✓	2R/J	(2)
3.2	3.2.1	Saturday.✓ It is the biggest piece of the pie✓✓	1A; 2R/J	(3)

Copyright reserved

	3.2.2	The percentage attendance of each day✓✓	2K	(2)
	3.2.3	Number of degrees = $\frac{11✓}{100} \times 360$✓ = 39,6°✓	1RG; 1M 1A	(3) [**35**]

QUESTION 4

QUESTION		SOLUTION	EXPLANATION	
4.1	4.1.1	a) $A = \pi r^2$ $0,64 = 3,14\, r^2$✓ $r^2 = \frac{0,64}{3,14}$✓ $r = \sqrt{0,204}$ = 0,45 ✓m	 1SF 1M 1A	 (3)
		b) $C = 2\pi r$ = 2 × 3,14 × 0,45✓ (CA radius) = 2,83 m✓	 1SF 1A	 (2)
	4.1.2	$C = 2\pi r$ = 2 × 3,14 × 4,9✓ = 30,77✓ Length of lines (2 × 30,5)✓+ (4 × 15,25)✓+ 30,77 + 2,83✓(CA 4.1.1) = 155,6 m✓	 1SF 1A 3MA 1A	 (6)

QUESTION		SOLUTION	EXPLANATION	
	4.1.3	Number of litres = 155,6 ÷ 15✓ = 10,37 litres✓ Number of tins = 10,37 ÷ 5✓ = 2,07✓ ≈ 3 tins ✓ Cost = 3 × 485✓ = R1 455✓ Yes, they can afford it.✓	1M 1A 1M 1A 1R 1M 1A 1R/J	 (8)
	4.1.4	Number of cm = 30,5 m × 100✓ = 3 050 cm✓ Scale = 3 050 ÷ 12,2✓ = 250✓ Scale 1:250✓	1C 1A 1M 1A 1A	 (5)

	4.1.5	a) Size of chair (m) = 45 ÷ 100✓ = 0,45 m ✓ Number of chairs = 30,5 ÷ 0,45✓ = 67,78✓ ≈ 67✓chairs	1C 1A 1M 1A 1R	(5)
		b) Total number of chairs = 67 × 3✓ = 201✓ chairs	1M 1A	(2)
4.2	4.2.1	$time = \frac{distance}{speed}$✓ $= \frac{289}{96}$✓= 3,01 Hours = 3 hours ✓ They will reach Harrismith at 08:00 + 3 hrs ✓ = 11:00 ✓	1MF 1SF 1A 1M 1A	(5)
	4.2.2	They will have to travel 557 – 289✓✓ = 268 km✓	1RM; 1M 1A	(3) **[39]**

TOTAL: **150**

Copyright reserved