



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.

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	(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	
	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	Total loan = $R10\,000$ ✓ Number of years = 3 years✓	1RG 1RG	(2)
1.2	1.2.2	a) The club pays = $R316,17 \times 36$ ✓ $= R11\,382,12$ ✓	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 ✓ $\times 4$ ✓ = $R288$ ✓ Weekly: 100×4 ✓ = $R400$ ✓ Monthly: $R340$ ✓ The daily ticket will work out cheaper.✓		3MA 2MA 1RT 1R/J	(7)

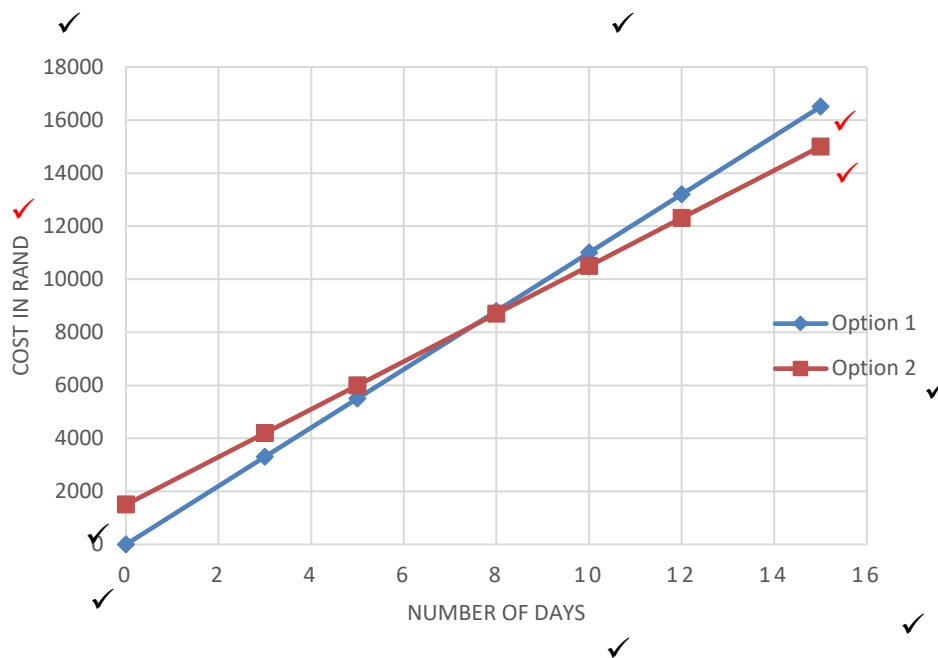
1.5	1.5.1	$63\,853 + 31\% \text{ of taxable income above } 305\,850 \checkmark$ $= 63\,853 + 31\% \text{ of } (386\,000 - 305\,850) \checkmark$ $= 63\,853 + 31\% \times 80\,150 \checkmark$ $= 63\,853 + 24\,846,50$ $= 88\,699,50 \checkmark$ $88\,699,50 - 14\,220 \checkmark$ $= R74\,479,50 \checkmark$	1RT 1M 1MA 1A 1M 1A	(6)
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QUESTION		SOLUTION	EXPLANATION	
	1.5.2	a) He actually paid $6\,241 \times 12 \checkmark$ $= 74\,892 \checkmark$ Difference = $74\,892 - 74\,479,50 \checkmark$ $= R412,50 \checkmark$	1M 1A 1MA 1A	(4)
		b) SARS will refund him \checkmark	1R/J	(1) [41]

QUESTION 2

QUESTION		SOLUTION	EXPLANATION	
2.1	2.1.1	$A = 5\,500 \div 1\,100 \checkmark$ $= 5 \text{ days} \checkmark$ OR $A = (6\,000 - 1\,500) \div 900 \checkmark$ $= 5 \text{ days} \checkmark$ $B = 1\,100 \times 8 \checkmark$ $= R8\,800 \checkmark$ $C = 1\,500 + (900 \times 12) \checkmark$ $= R12\,300 \checkmark$	1M 1A 1M 1A 1M 1A 1M 1A	(6)

2.1.2

**COMPARING COSTS OF OPTION 1
AND OPTION 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]

QUESTION 3

QUESTION		SOLUTION	EXPLANATION	
3.1	3.1.1	<p style="text-align: center;">Children at Netball clinic on different days ✓</p> <p>■ Week 1 ■ Week 2 ✓</p> <p>NUMBER OF CHILDREN ✓</p> <p>Monday Tuesday Wednesday Thursday Friday Saturday ✓</p> <p>DAYS OF THE WEEK ✓</p>	1 Heading 1 Labels both axes 1 Legend/bars labelled 3 Correct bars (1 mark 2 categories correct)	(6)
	3.1.2	<p>% of children on Saturday $\frac{55}{241} \times 100$ ✓ = 22,82% ✓</p> <p>% of children on Monday $\frac{29}{241} \times 100$ ✓ = 12,03% ✓</p> <p>Difference = 22,82% - 12,03% ✓ = 10,79% ✓</p>	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	CENTRAL TENDENCY		SPREAD	
		Mean✓		Range✓	
		Median✓			
		Mode✓			
	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)

	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) $C = 2\pi r$ $= 2 \times 3,14 \times 0,45$ ✓ (CA radius) $= 2,83$ m✓	1SF 1A	(2)
	4.1.2	$C = 2\pi r$ $= 2 \times 3,14 \times 4,9$ ✓ $= 30,77$ ✓ Length of lines $(2 \times 30,5)$ ✓ + $(4 \times 15,25)$ ✓ + $30,77 + 2,83$ ✓ (CA 4.1.1) $= 155,6$ m✓	1SF 1A 3MA 1A	(6)

QUESTION		SOLUTION	EXPLANATION	
	4.1.3	Number of litres = $155,6 \div 15$ ✓ $= 10,37$ litres✓ Number of tins = $10,37 \div 5$ ✓ $= 2,07$ ✓ ≈ 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 = $30,5 \text{ m} \times 100$ ✓ $= 3\ 050$ cm✓ Scale = $3\ 050 \div 12,2$ ✓ $= 250$ ✓ Scale 1:250✓	1C 1A 1M 1A 1A	(5)

	4.1.5	a) Size of chair (m) = $45 \div 100$ ✓ = 0,45 m ✓ Number of chairs = $30,5 \div 0,45$ ✓ = 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 $08:00 + 3 \text{ hrs}$ ✓ = 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