higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

MATHEMATICAL LITERACY
NQF LEVEL 4
(Second paper)

6 November 2024

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

This marking guideline consists of 10 pages.

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QUESTION 1

1.1	1.1.1	$\frac{100}{115}$✓ × R 6 399,99✓ **OR** (R 6 399,99 ÷ 1,15) = R5 565,21✓	2MA 1A	(3)
	1.1.2	$\frac{640}{6\,399,99}$ ✓ × 100✓ = 10%	2MA	(2)
	1.1.3	**Option A:** R6 399,99 **Option B:** R640 +✓ (R520 × 24)✓ = R13 120✓ R13 120 − R6 399,99✓ = R6 720,01✓	 2M 1A 1MCA 1CA	(5)
	1.1.4	She does not have the full amount available in cash.✓✓ **ANY RELEVANT ANSWER**	2R/J	(2)
1.2	1.2.1	**Option A** 750g ÷ 1 000✓ = 0,75 kg $\frac{62,64}{0,75}$ ✓ = R83,52/kg✓ **OR** $\frac{62,64}{750}$✓ = 0,08352 × 1 000✓ = R83,52/kg✓ **Option B** $\frac{145,90}{1,8}$ = R81,06/kg✓ Option B✓ is cheaper	 1C 1M 1A 1M 1C 1A 1A 1R/J	(5)
	1.2.2	$\frac{5}{100}$ × R145,90✓ = R7,30✓	1MA 1A	(2)

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1.3	1.3.1	R27 430 × 12 = R329 160✓	1A	
		Tax bracket: (237 101 – 370 500)✓	1RT	
		Annual Tax = R42 678 + 26% × (329 160 – 237 100)✓	1M	
		= R42 678 + $\frac{26}{100}$ × 92 060	1M	
		= R42 678 + R23 395,60✓		
		= R66 613,60✓	1A	
		= R66 613,60 – R17 235✓ – R 9 444✓	2M	
		= R39 934,60✓	1A	
		Monthly Tax = R39 934,60 ÷ 12✓	1M	
		= R3 3 27,88✓	1A	
		Note: If the rebate amounts are subtracted, allocate 2 marks (1 mark for each rebate amount). 1 mark for division by 12.		(10)
	1.3.2	Yes✓	1A	
		Jenna moved into a higher tax bracket (370 501 – 512 800)✓	1R/J	(2)
	1.3.3	PAY AS YOU EARN✓	1A	(1)
	1.3.4	R8 572 × 12✓	1M	
		R102 864✓	1A	
		Yes✓, his claim is valid.	1A	
		His annual taxable income is below the tax threshold.✓	1R/J	(4)
1.4		**Year 1**		
		$\frac{7,5}{100}$ × R10 000✓	1M	
		= R 750✓	1A	
		R10 000 + R750✓	1M	
		= R10 750✓	1A	
		Year 2		
		$\frac{7,5}{100}$ × 10 750		
		= R806,25✓	1A	
		R10 750 + R806,25		
		= R11 556,25✓	1A	
		R11 556,25 − R10 000✓	1M	
		= R1 556,25		
		OR		
		R750 + 806,25✓	1M	
		= R1 556,25		(7)
				[43]

QUESTION 2

2.1	2.1.1	73 250 ÷ 1 000 = 73,25✓ m^3	1A	
		V = $\pi \times r^2 \times h$ 73,25 = 3,14 × $3,6^2 \times h$✓ 73,25 = 40,69 × h $\frac{73,25}{40,69}$ ✓✓ = h 1,80✓ m = h	1SF 1MF,1M 1A	(5)
	2.1.2	**Area of the whole garden** Area = L × B Area = 30 × 15 ✓ Area = 450✓ m^2	 1SF 1A	
		Area of the pool $Area = \pi r^2$ $Area = 3,14 \times 3,6^2$ ✓ $Area = 40,69$✓ m^2	 1SF 1A	
		Area of the triangular flower bed Area = $\frac{1}{2}$ × 10 m × 15 m✓ = 75 m^2✓	 1M 1A	
		Area of the lawn Area = 450 − 40,69 − 75✓ = 334,31 m^2 ∴ Sive's statement is correct. ✓	 1M 1R/J	(8)
	2.1.3	$AC^2 = 15^2 + 10^2$ ✓ $AC^2 = 225 + 100$ $\sqrt{AC^2} = \sqrt{325}$ ✓ AC = 18,03 m AC = 19 ✓m	1SF 1M 1A	
		R306 × 19✓ = R5 814✓ R5 814 + R150✓ R5 964✓	1MCA 1A 1M 1A	(7)
2.2	2.2.1	Southwest✓✓ (SW)	2RM	(2)
	2.2.2	Every one unit on the map✓ equals 14 300 000 units in actual distance/reality.✓	2E	(2)

2.2.3	7 cm × 14 300 000✓ = 100 100 000✓ cm 100 100 000 ÷ 100 000✓ = 1 001 km	1M 1A 1C	(3)
2.2.4	Speed = $\frac{1\ 001\ km}{10\ hrs\ 45\ minutes}$✓ 45 minutes ÷ 60✓ = 0,75 hrs 10 hrs + 0,75hrs = 10,75✓ hrs Speed = $\frac{1\ 001\ km}{10{,}75\ hrs}$✓ Speed = 93,12✓ km/h	1SF 1C 1A 1M 1A	(5)
2.2.5	1 001 ÷ 100 ✓ × 7,5✓ × R22,95✓ = R1 722,97✓ = R1 722,97 × 2✓ = R 3 445,94✓ **OR** 1 001 × 2✓ =2 002✓ km 2 002 ÷ 100 ✓ × 7,5✓ × R22,95✓ = R 3445,94✓	3M 1A 1MCA 1CA 1M;1A 3MCA 1CA	(6) **[38]**

QUESTION 3

3.1	3.1.1	Quick Fix ✓	1A	(1)
	3.1.2	(a) A = R1 560✓	1A	(1)
		(b) B = R2 150✓	1A	(1)
	3.1.3	Direct✓ relationship As the number of hours increase✓ the cost in rand also increases✓.	1A 2E	(3)
	3.1.4	Cost = ✓ number of hours (n) × R520✓	2F	(2)
	3.1.5	Cost = ✓R350 +✓(number of hours (n) × R450) ✓	3F	(3)

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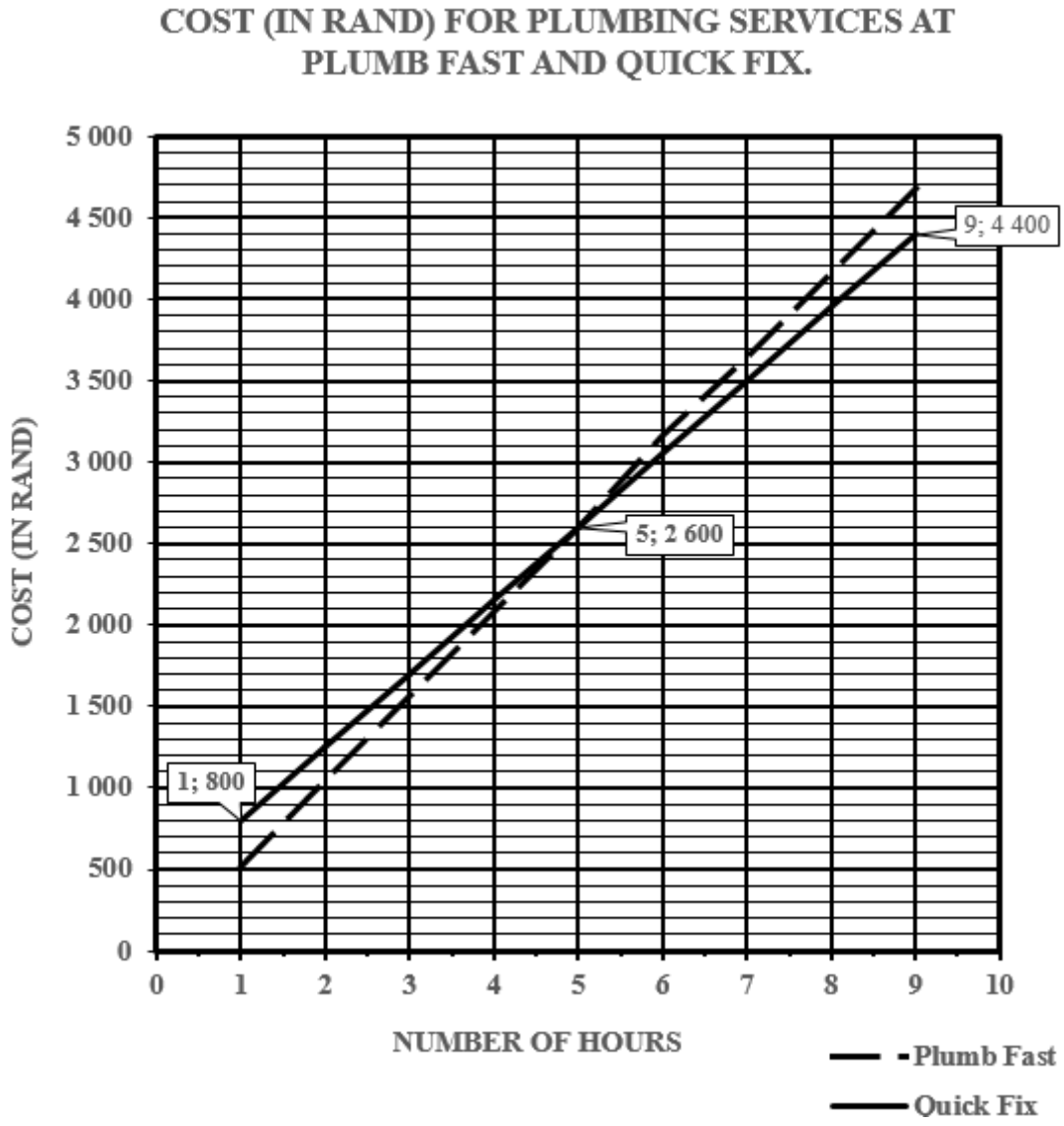
3.1.6 **Plumb Fast**

Cost = 12 × R520✓	1M	
= R6 240✓	1A	
Quick Fix		
Cost = R350 +✓(12 × R450)✓	2M	
= R350 + 5 400		
= R5 750✓	1A	
Difference		
= R6 240 − R5 750✓	1MCA	
= R490✓	1CA	
		(7)

3.1.7

20 units × 3 hours		
= 60 ✓hours	1A	
Plumb Fast		
60 × R520✓	1MCA	
= R31 200✓	1A	
Quick Fix		
R350 +✓(60 × R450)✓	2MCA	
R350 + R27 000		
= R27 350✓	1CA	
∴ Quick Fix✓ is cheaper.	1R/J	(7)

3.1.8



Label *x*-axis: Number of hours✓
Label *y*-axis: Cost in rand✓
Start point (1; 800) ✓ End point (9; 4 400) ✓
Label graph: Quick Fix✓
Correct straight line✓- check break-even point (5; 2 600) (6)

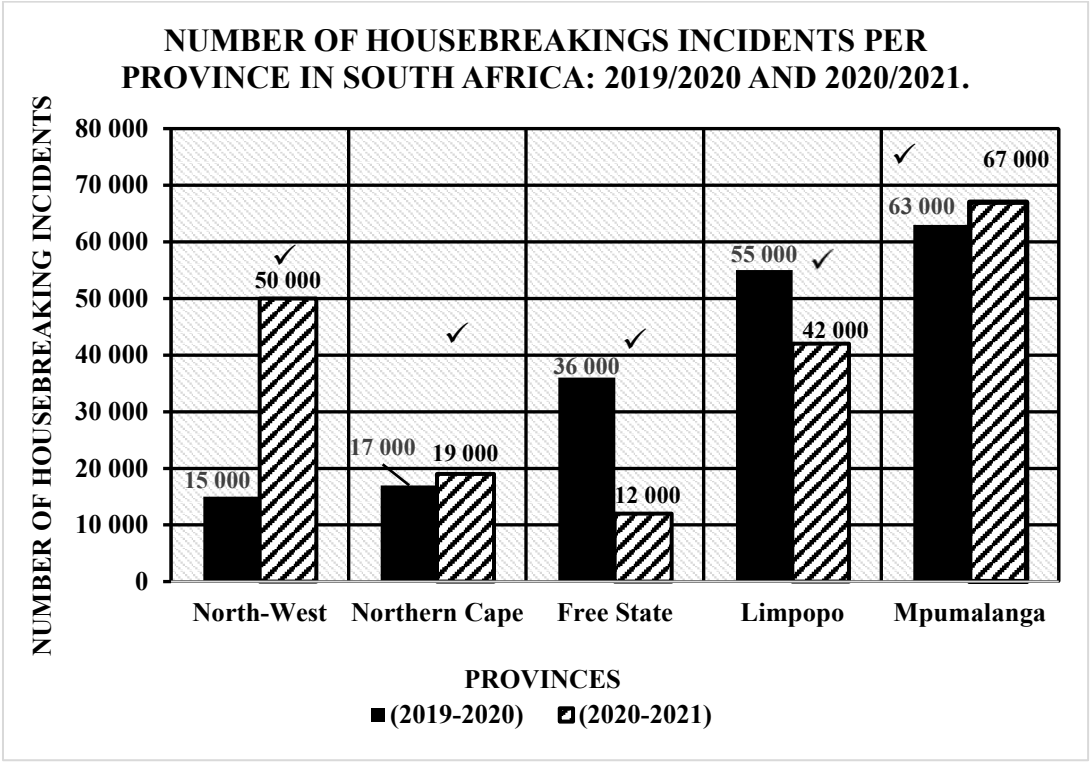
3.2 3.2.1 5×2✓$\div 8$✓ 2MA
$= 1{,}25$ (2)

3.2.2 Cost✓ 1A
Cost depends on the number of hours.✓ 1R/J (2)
[35]

QUESTION 4

4.1	4.1.1	9✓	1A	(1)
	4.1.2	Gauteng✓	1RT	(1)
	4.1.3	Northern Cape✓	1RT	(1)
	4.1.4	$238\,000 - 12\,000$✓ $= 226\,000$✓	1M 1A	(2)
	4.1.5	$\frac{(132\,000-109\,000)✓}{109\,000✓} \times 100$✓ $= 21{,}10\ \%$	3M	(3)
	4.1.6	**Mean (2019/2020)** $\frac{861\,000}{9}$ ✓ $= 95\,666{,}67$✓ **Mean (2020/2021)** $\frac{809\,000}{9}$ ✓ $= 89\,888{,}89$✓	1M 1A 1M 1A	(4)
	4.1.7	**Median (2020/2021)** 12 000; 19 000; 42 000; 50 000; 67 000; 77 000; 132 000; 172 000; 238 000 ✓ $\therefore Median = 67\,000$✓	1ARR 1A	(2)

4.1.8



Category label on x-axis Provinces
Label on y-axis. ✓
1 mark for each correct bar set (1 × 5)✓✓✓✓✓
Legend✓ (7)

4.2 4.2.1 $30,5 + 13,8 + 10,6 + 10,6 + 10,2 + 7,7 + 6,3 + 1,5$ ✓ $= 91,2$ 1MA
$100 - 91,2$✓ 1M
$= 8,8$✓% 1A (3)

4.2.2 $\frac{13,8}{100}$ ✓ × 360✓ 2MA
$= 49,68°$✓ 1A (3)

4.2.3 $\frac{100}{13,8}$ ✓ × 168 966✓ 2M
$= 1\ 224\ 391,30$ ✓km^2 1A (3)

4.3	4.3.1	$= \frac{23}{160}$ ✓✓	1num 1den	(2)
	4.3.2	$= \frac{95}{160}$ ✓ $= 0,59$ ✓	1M 1A	(2)
				[34]
			TOTAL:	**150**

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