



# higher education & training

Department:  
Higher Education and Training  
**REPUBLIC OF SOUTH AFRICA**

## MARKING GUIDELINE

**NATIONAL CERTIFICATE (VOCATIONAL)**

**NOVEMBER EXAMINATION 2012**

**MATHEMATICAL LITERACY**

**(First Paper)  
NQF LEVEL 3**

**30 OCTOBER 2012**

<b>Symbol</b>	<b>Explanation</b>
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
U	Unit

**This marking guideline consists of 10 pages.**



**NOTE:**

- Subtract **one mark only** for incorrect rounding (TWO decimal places) for the entire paper.
- Subtract **one mark only** for any units omitted throughout the entire paper unless stated otherwise at a specific question.
- **The total of this paper is 144.**

QUESTION 1 [35]		
Question	Solution	Explanation
1.1.1	$320 - 15 \times 5$ $= 320 - 75 \checkmark$ $= 245 \checkmark$	1 M method 1 A solution (Answer only: 2 marks) (2)
1.1.2	$\checkmark$ $(\frac{7}{3} \times 4,5) \div 6$ $= 10,5 \div 6$ $= 1,75 \checkmark$ or $1\frac{3}{4}$ or $\frac{7}{4}$ (Accept 1,73)	1 M method 1 A solution (Rounded off to TWO decimals) (Answer only: 2 marks) (2)
1.1.3	$2,5 \times R720 \checkmark$ $= R1\ 800 \checkmark$	1 M method 1 A solution (Answer only: 2 marks) (2)
1.2	$\frac{6}{13} \times 100$ $= 0,4615 \times 100 \checkmark$ $= 46,15\% \checkmark$ (Do not accept 46% or 46,2%)	1 M method ( $\times 100$ ) 1 A solution (Answer only: 2 marks) (2)
1.3	If, 1 loaf = 3 cups $\checkmark$ 5 loaves = $3 \times 5$ cups $\checkmark$ $= 15$ cups $\checkmark$	2 M method 1 A solution (Answer only: 3 marks) (3)
1.4	$3,5 \times 1\ 000 \checkmark$ $= 3\ 500\ m \checkmark$	1 M method 1 A solution (Answer only: 2 marks) (2)
1.5	Thabo $3 + 2 + 1 = 6 \checkmark$ $\frac{3}{6} \times 7\ 900 \checkmark = R3\ 950 \checkmark$	Thipe $\frac{2}{6} \times 7\ 900 = R2\ 633,33 \checkmark$ 2 M method 2 A solution (or 2 marks for R3 950 only and 2 marks for R2 633,33 only) (4)



## MATHEMATICAL LITERACY L3 (First Paper)

1.6	$\begin{aligned} \text{If } 1 \text{ kg} &= 7,99 \\ 1,5 \text{ kg} &= 7,99 \times 1,5 \checkmark \\ &= R11,99 \checkmark \end{aligned}$	1 M method 1 A solution (Answer only: 2 marks) (2)
1.7	$\begin{aligned} 14\% \text{ of } 4\,950 &= 693 \checkmark \\ 693 + 4\,950 \checkmark &= R5\,643 \checkmark \end{aligned}$ <p>or</p> $\frac{114}{100} \times 4\,950 = R5\,643 \checkmark \checkmark$ <p>or</p> $1,14 \times 4\,950 = R5\,643 \checkmark \checkmark$	2 M method 1 A solution (Answer only: 3 marks) (3)
1.8	$\begin{aligned} 20\% \text{ of } 350 &= 70 \checkmark \\ 350 + 70 \checkmark &= R420 \checkmark \end{aligned}$ <p>or</p> $\frac{120}{100} \times 350 = R420 \checkmark \checkmark$ <p>or</p> $1,2 \times 350 = R420 \checkmark \checkmark$	2 M method 1 A solution (Answer only: 3 marks) (3)
1.9	$\begin{aligned} (7,7 \times 2) + (6,2 \times 2) \checkmark \\ &= 15,4 + 12,4 \\ &= 27,8 \text{ cm} \checkmark \end{aligned}$	1 M method 1 A solution (Answer only: 2 marks) (2)
1.10	$\begin{array}{ccc} \checkmark \checkmark & & \checkmark \\ 10 \text{ hours and } 10 \text{ minutes} \end{array}$	2 A solution hours 1 A solution min (If 10h10 or 10:10 only 2 marks) (3)
1.11	$\begin{aligned} V &= 3,14 \times (25^2) \times 80 \checkmark \\ &= 157\,000 \checkmark \text{ cm}^3 \checkmark \end{aligned}$	1 SF substitution in formula 1 A solution 1 U (Answer only with units: 3 marks) (3)
1.12	$\begin{aligned} 1 \text{ cm} &= 50\,000 \\ 23,7 \text{ cm} \\ &= 23,7 \times 50\,000 \checkmark \\ &= 1\,185\,000 \checkmark \text{ cm or } 11\,850 \text{ m or } 11,85 \text{ km} \end{aligned}$	1 M method 1 A solution (Answer only: 2 marks) (2)



QUESTION 2 [10]		
Question	Solution	Explanation
2.1		
2.1.1	$A = 32$ ✓✓	1 R reasoning 1 A solution (Answer only: 2 marks) (2)
2.1.2	$B = 64$ ✓✓	1 R reasoning 1 A solution (Answer only: 2 marks) (2)
2.1.3	$C = 4$ ✓	1 A solution (1)
2.2	$x$ ✓ = $2^y$ ✓ ✓	3 A solution (1 mark for $x$ ; 1 marks for $y$ ; 1 mark for 2) (3)
2.3	$x = 2^{11}$ ✓ $= 2\ 048$ ✓	CA Question 2.2 1 M method 1 A solution (Answer only: 2 marks) (2)
2.4 and 2.5	<b>NOTE:</b> <b>The given table on the question paper does not correlate with the grid on Annexure A.</b> <b>Do not mark question 2.4 and 2.5</b> <b>TOTAL of paper adjusted to 144.</b>	

QUESTION 3 [14]																														
Question	Solution		Explanation																											
3.1	<table border="1"> <tr> <td>Income</td> <td></td> <td>R27 600 ✓</td> </tr> <tr> <td>Expenditure</td> <td>Water and electricity</td> <td>R3 500</td> </tr> <tr> <td></td> <td>Rent</td> <td>R3 000</td> </tr> <tr> <td></td> <td>Products</td> <td>R1 850</td> </tr> <tr> <td></td> <td>Salaries ✓</td> <td>R10 000 ✓</td> </tr> <tr> <td></td> <td>Grocery</td> <td>R600</td> </tr> <tr> <td></td> <td>Petty cash</td> <td>R1 200</td> </tr> <tr> <td></td> <td>Total</td> <td>R20 150 ✓</td> </tr> <tr> <td></td> <td>Surplus</td> <td>R7 450 ✓✓</td> </tr> </table>	Income		R27 600 ✓	Expenditure	Water and electricity	R3 500		Rent	R3 000		Products	R1 850		Salaries ✓	R10 000 ✓		Grocery	R600		Petty cash	R1 200		Total	R20 150 ✓		Surplus	R7 450 ✓✓		Income: 1 Mark  All 6 expenses: 1 Mark All 6 values: 1 Mark (For 5 expenses and 5 values give one mark only; CA only for total expenses)  Total expenses: 1 Mark Surplus amount: 2 Marks  (6)
Income		R27 600 ✓																												
Expenditure	Water and electricity	R3 500																												
	Rent	R3 000																												
	Products	R1 850																												
	Salaries ✓	R10 000 ✓																												
	Grocery	R600																												
	Petty cash	R1 200																												
	Total	R20 150 ✓																												
	Surplus	R7 450 ✓✓																												



## MATHEMATICAL LITERACY L3 (First Paper)

3.2	R7 450✓	CA in question 3.1 1 A solution (1)
3.3	Surplus✓✓ (Also refer to answer indicated on Annexure A)	CA in question 3.3 2 A solution (2)
3.4	Salaries✓ and Rent✓	2 A solution (2)
3.5	Expenditures that change/vary from month to month. ✓ Examples: water and electricity, products, petty cash, groceries (Any 2) ✓✓	1 E 2 Examples (3)

QUESTION 4 [15]		
Question	Solution	Explanation
4.1	1 : 250 ✓ Or 1 cm = 250 cm Or 1 mm = 0,25 m Or 1 mm = 25 cm	1 A (1)
4.2	$12 \times 0,25$ ✓ (or $12 \times 250 = 3\ 000$ mm) $= 3\text{m}$ ✓ Or 3 000 mm or 300 cm	1 M 1 A with correct unit (Answer only: 2 marks) (2)
4.3	B5✓ and C5✓ (or 5B and 5C)	2 A (2)
4.4	Store room✓	1 A (1)
4.5	North East✓	1 A (1)
4.6	Length = 60 mm (Accept 60 to 62 mm) Length = $60 \times 0,25$ ✓ Length = 15 m✓ (Accept 15 to 15,5 m)  Width/Breadth = 48 mm (Accept 48 to 50 mm) Width/Breadth = $48 \times 0,25$ ✓ Width/Breadth = 12 m✓ (Accept 12 to 12,5 m)	1 M 1 A  1 M 1 A (4)







## MATHEMATICAL LITERACY L3 (First Paper)

6.2.2	$y = 2x$ ✓✓ or $y = x + n$ or $y = 2n$	2 A solution (2)
6.3 6.3.1	$y = 2(18)$ $y = 36$ ✓	1 A solution (CA question 6.2.2) (1)
6.3.2	$y = 2(77)$ ✓ $y = 154$ ✓	1 SF(CA: Refer to formula used in 6.2.2) 1 A solution (Answer only: 2 marks) (2)

QUESTION 7 [16]		
Question	Solution	Explanation
7.1	1 – 30 August 2012✓ (Accept 1 month or 30 days)	1 A solution (1)
7.2	R44 014,01✓	1 A solution (1)
7.3	To deduct/withdraw R7 000 from that account✓✓	2 A solution (2)
7.4 7.4.1	$A = R30\ 668,18 - R30\ 680,08$ ✓ $A = -R11,90$ ✓ or $A = R11,90$	1 M 1 A solution (1 mark maximum allocated for R11,9) (Answer only: 2 marks) (2)
7.4.2	$B = R41\ 472,86 - R5\ 226,03$ ✓ $B = R36\ 246,83$ ✓	1 M 1 A solution (Answer only: 2 marks) (2)
7.4.3	$C = R41\ 446,46 + R55\ 080,00$ ✓ $C = R96\ 526,46$ ✓	1 M 1 A solution (Answer only: 2 marks) (2)
7.5	$= R36\ 246,83 + R55\ 080,00$ ✓ $= R91\ 326,83$ ✓	1 M 1 A solution CA question 7.4.2 (Answer only: 2 marks) (2)





## MATHEMATICAL LITERACY L3 (First Paper)

7.6	7.6.1	$= R19\ 000 \times 0,55 \checkmark$ $= R10\ 450,00 \checkmark$	1 M 1 A solution (Answer only: 2 marks) (2)
	7.6.2	$= R19\ 000 - R10\ 450 \checkmark$ $= R8\ 550,00 \checkmark$  Or $100\% - 55\% = 45\%$  $= R19\ 000 \times 0,45 \checkmark$ $= R8\ 550,00 \checkmark$	1 M 1 A solution CA question 7.6.1 (Answer only: 2 marks)  CA (2)

QUESTION 8 [13]			
Question	Solution	Explanation	
8.1	8.1.1	$= 120\ \text{km} + 60\ \text{km} \checkmark + 27\ \text{km} + 1\ \text{km} \checkmark$ $= 208 \checkmark\ \text{km}$	2 M (1 per correct pair) 1 A solution (Answer only: 3 marks) (3)
	8.1.2	$75\ \text{min} = 1,25\ \text{h} \checkmark$ Speed = $\frac{120}{1,25} \checkmark$ $= 96 \checkmark\ \text{km/h}$	1 (convert to h) 1 SF (If not converted to h, no further marks) 1 A solution (Answer only: 3 marks) (3)
8.2	8.2.1	Length = $2,5\ \text{m} \times 4 \checkmark$ Length = $10 \checkmark\ \text{m}$	1 M 1 A solution (Answer only: 2 marks) (2)
	8.2.2	Area = $2,5\ \text{m} \times 4\ \text{m} \checkmark$ Area = $10\ \text{m}^2 \checkmark$	1 M 1 A solution with units (Answer only with units: 2 marks) (2)
	8.2.3	Length = $(4\ \text{m} \times 5) \checkmark + (2,5\ \text{m} \times 4) \checkmark$ Length = $30\ \text{m} \checkmark$  Alternative answer $(4\ \text{m} \times 5) + 10\ \text{m}$ $= 30\ \text{m}$	2 M (1 per correct pair) 1 A solution (Answer only: 3 marks) (3)



<b>QUESTION 9 [14]</b>		
<b>Question</b>	<b>Solution</b>	<b>Explanation</b>
9.1	June✓	1 A solution (1)
9.2	April✓✓	2 A solution (2)
9.3 9.3.1	Range = 711 – 255✓ Range = 456✓	1 M 1 A solution (Answer only: 2 marks) (2)
9.3.2	Range = 765 – 377✓ Range = 388✓	1 M 1 A solution (Answer only: 2 marks) (2)
9.4	255, 300, 431, 551, 612, 711✓ (Ascending order)  Median = $\frac{431+551}{2}$ ✓(numerator)✓(denominator) Median = 491✓	1 Order  2 M (average )  1 A solution (4)
9.5	Total visitors = 450 + 300 = 750✓ Probability = $\frac{450}{750}$ ✓ Probability = $\frac{3}{5}$ ✓ or 60%	2 M 1 A solution  (3)

**TOTAL: 150**