higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

NOVEMBER EXAMINATION 2011

MATHEMATICAL LITERACY
(First Paper)

NQF LEVEL 2

7 NOVEMBER 2011

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
U	Unit

This marking guideline consists of 8 pages.

QUESTION 1 [22]

	Question	Solution	Explanation
1.1	1.1.1	35 + 48 = 83✓	1 A (1)
	1.1.2	12× 5 = 60 ✓	1 A (1)
	1.1.3	$\frac{3}{4} + \frac{6}{4} = 2\frac{1}{4}$✓ or 2,25 ✓or $^{9}/_{4}$ ✓	1 A (1)
	1.1.4	3,5 (3,5) =12,25✓ or $12^{1}/_{4}$ ✓	1 A (1)
	1.1.5	9 + 4 = 13✓	1 A (1)

1.2.	10 : 06 -08 : 45✓ 01 : 21✓ or 1 hour 21 min. ✓✓	1 M subtraction 1 A time 2 Answer only (2)
1.3	Mother: R 46,00 Children R 45,00 (3 children × R15,00 per child) ✓ R91,00✓	1 M multiplication and adding 1 A Rands 2 Answer only (2)
1.4	45 ÷ 4✓ =11,25 ∴ Zintle needs 12 boxes to transport her 45 donuts (round up) ✓	1 M division 1 R (2)
1.5	1348 × 1,14 ✓✓✓ =1536,72 or 1348 x 14% = 188,72 188,72+ 1348 = 1536,72✓✓✓	2 M 1 A 3 Answer only (3)

1.6	1 : 20 000 ∴ 18cm = 18 × 20 000✓ = 360 000 cm✓ Convert to meters: 360 000 ÷ 100 (1 meter = 100 cm) = 3 600 m Convert to kilometres: or 360 000 ÷ 100 000 = 3,6 km 3 600 ÷ 1000 = 3,6 km✓	1 MA calculating distance in cm 1 C meters 1 C to km (3)
1.7.1	Nelisiwe : Thobile 12 : 8 3✓ : 2✓	2 S (2)

1.7.2	Nelisiwe : Thobile 12 : 8 Payment to Nelisiwe: $\frac{12}{20}$ ✓ × $\frac{R920}{1}$ ✓ ($^3/_5$ simplest form as well) ✓ = R552✓	1 M 1 CA (3) **[22]**

QUESTION 2 [11]

Question	Solution		Explanation
2.1	14 km✓		1 RG (1)
2.2	3 stops✓ indicated by the horizontal line. ✓		1 RG 1 J (2)
2.3	2.3.1	16 km✓ 9:50✓	2 A (2)
	2.3.2	10:30✓ or 10h 30	1 A time (1)

2.4	10 minutes✓	1 A (1)
2.5	60-30 = 30 minutes✓✓	2 A (2)
2.6	16+16 =32 km✓✓	2 A (2) **[11]**

QUESTION 3 [9]

	Question	**Solution**	**Explanation**
3.1	Third National Bank✓		1 RD (1)
3.2	T. Hlekiso✓		1 RD (1)
3.3	3.3.1	Collen Oaks✓	1 RD (1)
	3.3.2	2008 / 08 / 22✓ (or any other correct date format)	1 RD (1)

3.4	1,03% of R6 500 $= \frac{1,03}{100} \times \frac{R6500}{1}$ ✓ $= \frac{R6695}{100}$ = R66,95✓	1 MA deposit fee + deposit amt 1 A Rands (2)
3.5	Deposit fee = Amount deposit × 0.0103 R7.72 = Amount deposit × 0.0103✓ Amount deposit = $\frac{R7.72}{0.0103}$ ✓ Amount deposit = R749,51✓	1 SF formulae given 1 CA 1 A Rands (3)

QUESTION 4 [11]

Question	Solution		Explanation
4.1	4.1.1 C✓ 4.1.2 A✓ 4.1.3 B✓		1 A per question number (3)
4.2	4.2.1	Volume = π r^2 h = 3.14 (35 cm)^2 × 260 cm✓ = 3.14 (122 5 cm^2) × 260 cm ✓ ✓ = 1 000 090 cm^3	1 SF 1 A volume 1 cm^3 (Unit) 2 Answer only (3)
	4.2.2	= $\frac{1000090}{1000}$ ✓ = 1 000, 09 litres✓ ≈ 1 000 liters✓	(CA 4.2.1) 1 C 1 A litres 1 R 2 Answer only (3)
	4.2.3	90% of 1 000 or 0,9 × 1 kℓ = 0,9 kℓ = 0,9 × 1 000 = 900 ℓ ✓÷ 1000 = 0,9 kℓ✓	(CA 4.2.2) 1 M 1 A kℓ (2) **[11]**

QUESTION 5 [13]

Question	Solution	Explanation
5.1.1	Mean = $\frac{775}{11}$ ✓✓ = 70,45✓ or 70,5 or 70	1 Sum 1 divided by 11 1 A mean (CA) (3)
5.1.2	21,5 21,6 22,5 22,9 23,5 24,0 25,3 26,0 26,5 28,1 30,1 =24✓✓	2 Answer only (2)
5.1.3	1,64✓	1 A (1)

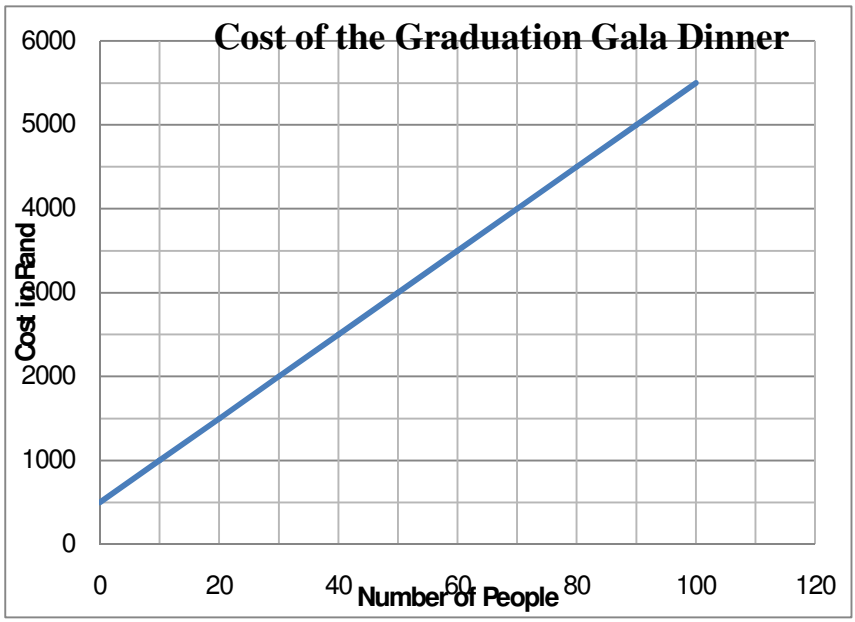
5.2

CLASSIFICATION	TALLY	NUMBER OF LEARNERS (FREQUENCY)
Underweight (< 18,5)		0✓
Normal weight (18,5 to < 25)	IIII — I	6✓
Overweight (25 to < 30)	IIII	4✓
Obese (≥ 30)	I	1✓
	TOTAL	11

5.2.1	1 Mark per Interval, excluding Total	Construct Frequency Table (4)
5.2.2	Normal Weight = $\frac{6}{11}$ ✓× $\frac{100}{1}$ ✓ = 54,5%✓ or 54,55 or 55	1 CA ratio (from question 5.2.1) 1 M 1 CA percentage (3) **[13]**

QUESTION 6 [12]

Question	Solution	Explanation
6.1	A) R500 + (40 × R50) = R500 + R2 000 = R2 500✓ B) 6000=500+(50 B) B = 110✓	A) 1 A answer only B) 1 A answer only (2)
6.2	Cost=Venue charge ✓+ (Number of people × R50,00) ✓ OR C= 500 + 50 *n*	2 A formulae (2)
6.3	Cost = Venue charge + (Number of people × R50,00) = R500 + (123 × R50) ✓ = R6650✓✓	1 SF (CA 6.2) 2 A Rands (3)



6.4	1 A joining points✓ 1 A beginning ✓ 1 A end point✓ (80;4500) 1 A 2 corresponding middle points✓ 1 A straight line✓	Construct line graph (5) **[12]**

QUESTION 7 [8]

Question	**Solution**	**Explanation**
7.1	Area = 2,5 × 3✓ Area = 7,5 m^2 ✓	(Ignore units for the whole question) 1 MA 1 A (2)
7.2	Perimeter = 2(2,5 + 3) ✓ Perimeter = 11 m✓	1 MA 1 A (2)
7.3.1	0,25m × 0,25m✓ = 0,0625 m^2 ✓ or 0,06 m^2	1 MA 1 A (2)
7.3.2	No. of tiles required = 7,5 ÷ 0,0625✓ = 120✓ Or 7,5 ÷ 0,06 = 125	CA 7.1 and 7.3.1 1 MA 1 A (2) **[8]**

QUESTION 8 [7]

Question	Solution	Explanation
8.1	15 500 – 13 500✓ = 2 000✓	2 CA (2)
8.2	$= \frac{Petrol}{Total\_Expenditure} \times \frac{100}{1}$ $= \frac{600}{15500} \times \frac{100}{1}$✓ = 3,9%✓	1 MA 1 A percentage (2)
8.3	Calculate Percentage Increase: $\frac{1.8}{100} \times \frac{R4589}{1}$ $= \frac{R8260.20}{100}$ = R82,602 = R82,60✓ New home loan repayment amount: R4 589,00 + R82,60✓ = R4 671,60✓ OR Calculate new home loan amount: $\frac{101,8}{100}$✓ $\times \frac{R4589}{1}$ $= \frac{R467160.2}{100}$✓ = R4 671,602 = R4 671,60✓	1 MA calculate precentage incr 1 A answer in Rands 1 CA calc new loan repayment (3) **[7]**

QUESTION 9 [7]

9.1	10% ✓	1 RG (1)
9.2	100 – (10 + 3 + 2 + 55) or $^{105}/_{350}$ ✓x 100 = 30%✓✓ 100 - 70✓ 30% ✓✓	1 M subtracting 1 A sum = 70 1 A difference (3)
9.3	3% of 350✓ = 0,03 × 350 = 10,5 ✓≈ 10 or 11 students✓	1 A correct values 1 M 1 R (3) **[7]**

TOTAL: 100