higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

NOVEMBER EXAMINATION 2011

MATHEMATICAL LITERACY
(Second Paper)
NQF LEVEL 3

10 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

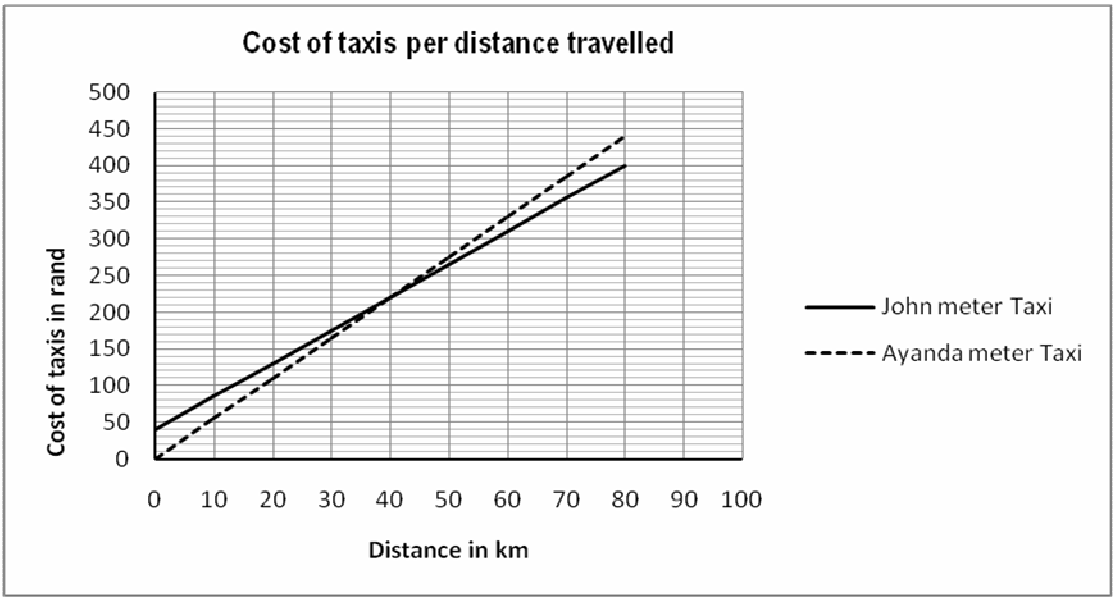
This marking guideline consists of 7 pages.

QUESTION 1 [59]			
Question		**Solution**	**Explanation**
1.1	1.1.1	$A = 50\left(1+\frac{0,015}{12}\right)^{60}$ ✓✓✓ A= R53,89✓	3 SF Substitution in Formula 1 A solution (4)
	1.1.2	Bank charges = R1,20 × 5✓ × 12 months ✓ Bank charges = R72,00✓	2 M Method 1 A solution (3)
	1.1.3	No ✓ It is clear that the bank charges✓ were more✓ than the interest in the savings account✓ or It is clear that the interest ✓ is less✓ than bank charges in the savings account✓ Or any other suitable reasons including simple calculations.	1 A solution 3 J Justification (4)
1.2	1.2.1 a)	R5 000✓✓	2 A solution (2)
	b)	Between -R8 000 and -R9 000✓✓	2 A solution (2)
	c)	3 weeks✓ (Week: 3, 6 & 7) ✓	2 A solution (2)
	1.2.2	= R7 000✓ + R10 000 ✓ = R17 000✓ (Allow R7000 to be R6 000 or R8 000 also)	2 M Method 1 A solution (2)
	1.2.3	The account is at R0,00 balance✓✓or non or nil	2 E Explanation (2)
	1.2.4 a)	A withdrawal (debit) until in overdraft✓✓ Or R12 000 withdrawn	2 E Explanation (2)
	b)	A huge deposit (credit) into bank account✓✓ Or R34 000 deposited	2 E Explanation (2)

1.3	1.3.1	Area = (2 + 3,5) ✓× 5,5✓ Area = 30,25 m^2✓	2 M Method 1 A solution (3)
	1.3.2	Monthly rent = R250✓+ (R80 × 30,25) ✓ Monthly rent = R250 + R2 420✓ Monthly rent = R2 670✓	3 M Method 1 A solution (4)
	1.3.3	Area = 3 × 3,5✓✓ Area = 10,5 m^2✓	1 A values 1 M Method 1 A solution (3)
	1.3.4	Total cost = (R35 × 10,5) ✓ + (R20 × 10,5) ✓ Total cost = R367,50✓ + R210✓ Total cost = R577,50✓	4 M Method 1 A solution (5)

1.4	1.4.1	February✓, March✓, April✓ or January - April	3 A solution (3)
	1.4.2	9%✓✓ (Also full marks if answer is given as 9 only)	2 RG Read from graph (2)
	1.4.3	November✓✓	2 RG Read from graph (2)
	1.4.4	No. of visitors = 4020×5% ✓✓ No. of visitors = 201✓	1RG 1 M Method 1 A solution (3)
	1.4.5	Mean % = $\frac{23+16+5+4+9+2+15+1+4+5+11+5}{12}=\frac{100}{12}$ ✓✓✓ Mean % = 8,333%✓ or 8,33 or 8,3 or 8	3 M Method 1 A solution (4)
	1.4.6	Aug (1%) Jun (2%) Apr (4%) Sept (4%) March (5%) Oct (5%) Dec (5%) May (9%) Nov (11%) Feb (16%) Jan (23%) ✓✓ Median = (5 + 5) ÷ 2 = 5%✓	1 M ordering 2 A solution (3)
	1.4.7	New students from schools looking for information✓✓ Or any other acceptable explanation	2 E Explanation (2) **[59]**

QUESTION 2 [24]			
Question		**Solution**	**Explanation**
2.1	2.1.1	Cost(A) = R5,50 × 30 km✓ Cost(A) = R165,00✓ Distance(B) = R330 ÷ R5,50 ✓ Distance(B) = 60 km✓	2 Method 2 A solution (4)
	2.1.2	Cost = R5,50✓ × Distance✓	2 A solution (2)
	2.1.3	Cost = R5,50 × 33 km✓ Cost = R181,50✓	1 SF 1 A solution (2)
2.2	2.2.1	Cost = R40 + (R4,50 × 33) ✓ Cost = R188,50✓	1 SF 1 A solution (2)
	2.2.2	R535✓ = R40 + (R4,50 × Distance) ✓ Distance = R495 ÷ R4,50 Distance = 110 km✓	2 SF 1 A solution (3)
2.3	1 A Beginning point 1 A Breakeven point 1 A Ending point 1 A Labeling 1 A Title		5 Drawing graph (5)



2.4	2.4.1	Agree✓ Ayanda meter taxi is cheaper at distances less than 40 km. ✓	1 A solution 1 J Justification (2)
	2.4.2	Disagree✓ Both taxis cost the same at 40 km✓	1 A solution 1 J Justification (2)

2.5	John meter taxi✓ It is cheaper at distances more than 40 km✓	1 A solution 1 J Justification (2) **[24]**

QUESTION 3 [22]			
Question		**Solution**	**Explanation**
3.1	3.1.1	Consumption = 377 912✓ – 376 912✓ = 1 000 kWh✓	2 M Method 1 A solution (3)
	3.1.2	Charge = 1 000 × R0,78✓ = R780,00✓	1 M Method 1 A solution (2)
	3.1.3	VAT = R780 × 0,14✓ = R109,20✓	1 M Method 1 A solution (2)
	3.1.4	Amount = R780 + R 109,20✓ = R889,20✓	1 M Method 1 A solution (2)
	3.1.5	Amount owed = R33 + R4,62✓ = R37,62✓	1 M Method 1 A solution (2)
	3.1.6	Total amount due = R889,20 + R37,62✓ = R926,82✓	1 M Method 1 A solution (2)

3.2	% increase = $\frac{1\,000 - 901}{901}$ ✓✓× 100% ✓ % increase = 10,99%✓or 11%	3 M Method 1 A solution (4)
3.3	Meter reading = 376 912 – 901✓✓ Meter reading = 376 011✓	1 A values 1M Method 1 A solution (3)

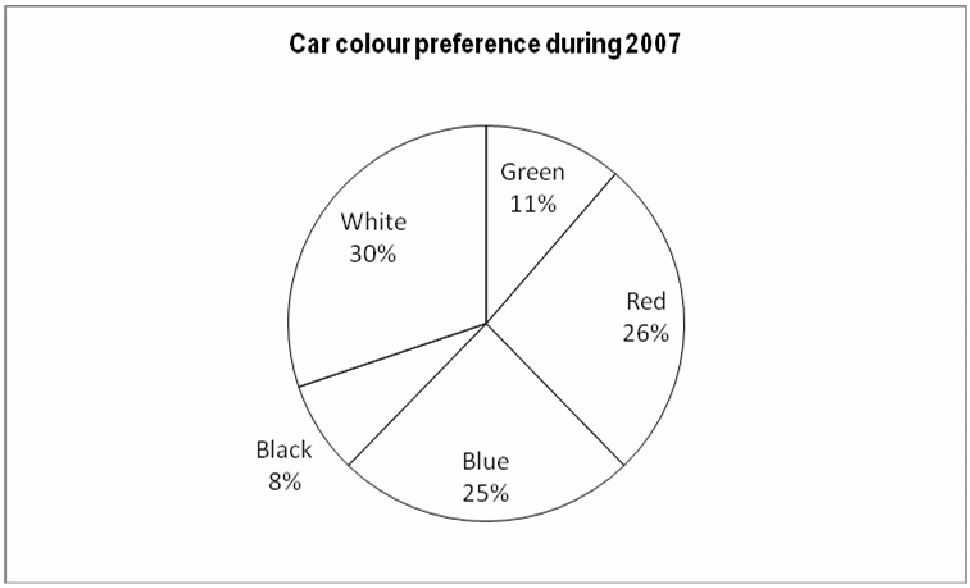
3.4	Electricity bill is up to date. Any appropriate answer according to the electricity bill✓✓	2 A timeframe (2)

[22]

QUESTION 4 [20]		
Question	**Solution**	**Explanation**
4.1	AB = $\sqrt{3^2 + 4^2}$ ✓✓ = $\sqrt{25}$ AB = 5 cm✓	2 SF 1 A solution (3)
4.2	P = 5 + 5 + 6✓✓ P = 16 cm✓	2 M Method 1 A solution (3)
4.3	Area = $\frac{1}{2} \times 6 \times 4$ ✓✓ Area = 12 cm^2✓	2 SF 1 A solution (3)
4.4	Length of the dough = 3 + 6 + 6 + 3 = 18 cm✓ Breadth of the dough = 4 × 4 = 16 cm✓ Total area of the dough = 16 × 18✓ = 288 cm^2✓ Total area of the dough strips = 20 × 12 cm^2✓ Total area of the dough strips = 240 cm^2✓ Dough wasted = 288 – 240 = 48 cm^2✓ (or any other acceptable/shorter answer)	6 M method 1 A solution (7)
4.5	No, ✓ 48 cm^2 ÷ 12 cm^2✓ = 4✓ You can still get 4 dough strips out of the waste dough✓	1 A solution 2 calculations 1 Explanation (4)

[20]

QUESTION 5 [25]		
Question	**Solution**	**Explanation**
5.1	Black – least popular✓ White – most popular✓	2 A description (2)
5.2	40 (Black) 60 (Green) 130 (Blue) 140 (Red) 160 (White) Blue✓✓	1 M 1 A solution (2)
5.3	Range= 160 – 40✓ = 120✓	1 M Method 1A solution (2)
5.4	5 colours✓ and 60 + 140 + 130 + 40 + 160 ✓ = 530 (sample size)✓	1 A solution (3)
5.5	Probability = $\frac{60}{530}$ ✓= $\frac{6}{53}$ ✓ =11,32%✓ (Full marks for $\frac{60}{530}$ or 60:530 only)	2 M Method 1 A solution (3)
5.6	Invalid ✓ Yellow cars were not part of the survey, therefore his claim is invalid ✓✓	1 A Choice 2 R/J (3)
5.7	See the pie chart below (1 mark for colour✓ + 1 mark for percentage✓) × 5 **Or** 5 marks for correct legend 5 marks for percentages Subtract 1 mark for every incorrect proportion	(10)



[25]

TOTAL: 150