NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2011

MATHEMATICAL LITERACY: PAPER I

MARKING GUIDELINES

Time: 3 hours 150 marks

These marking guidelines were used as the basis for the official IEB marking session. They were prepared for use by examiners and sub-examiners, all of whom were required to attend a rigorous standardisation meeting to ensure that the guidelines were consistently and fairly interpreted and applied in the marking of candidates' scripts.

At standardisation meetings, decisions are taken regarding the allocation of marks in the interests of fairness to all candidates in the context of an entirely summative assessment.

The IEB will not enter into any discussions or correspondence about any marking guidelines. It is acknowledged that there may be different views about some matters of emphasis or detail in the guidelines, and different interpretations of the application thereof. Hence, the specific mark allocations have been omitted.

QUESTION	POSSIBLE ANSWERS AND MARK ALLOCATION	AO	MARKS	LO	THINKING LEVEL		
					1	2	3
Question 1 – 45 marks							
1.1.1	$\frac{2}{7} \times R3,56$ [m] = R1,02 [a]		(2)	12.1.1	2		
1.1.2	$\sqrt{5^2 + 3^2}$ [m] = $\sqrt{34}$ [a] = 5,83 [ca]		(3)	12.1.1	2	1	
1.2	$\frac{500}{12}$ = 41,6 R208,33 [a] R291,67 [a]		(4)	12.1.1	2	2	
1.3	$\frac{40}{160}$ [m] × 100 [m] = 25% [a]		(3)	12.1.1	1	2	
1.4	150 g × 2 = 300 g		(2)	12.3.2	2		
1.5	$\frac{48\,m}{12\,cm} = \frac{x}{1cm}$ [m] $x = 4\,m$		(3)	12.1.1 12.3.2	3		
1.6	R175 × 10% = R17,50 [m] ∴ R175 – R17,50 = R157,50 [ca]		(2)	12.1.1	2		
1.7.1	£750 × 1,82 [m] = $1365 [a]		(2)	12.1.3		2	
1.7.2	€2000 ÷ 1,43 = £1398,60 [a] ≈ £1399 [ca]		(3)	12.1.3	1	1	1
1.8.1	Top Gear [a]		(1)	12.2.3	1		
1.8.2	12 – 3 [m] = 9 [a]		(2)	12.4.3		2	
1.8.3	39 [a] = (3 + 12 + 8 + 9 + 7) [m]		(2)	12.2.3	1	1	
1.8.4	$\frac{7}{39}$ [a] [a]		(2)	12.4.5		2	
1.9.1	237 ÷ 42 = 5,6 [m] ∴ 6 boxes [a]		(2)	12.1.1		1	1
1.9.2	237 – (5 × 42) [m] = 27 DVDs [a]		(2)	12.1.1			2
1.9.3	(6 × R49,95) [m] × 1,14 [m] = R341,66 [a] [ca]		(4)	12.1.1	1	3	

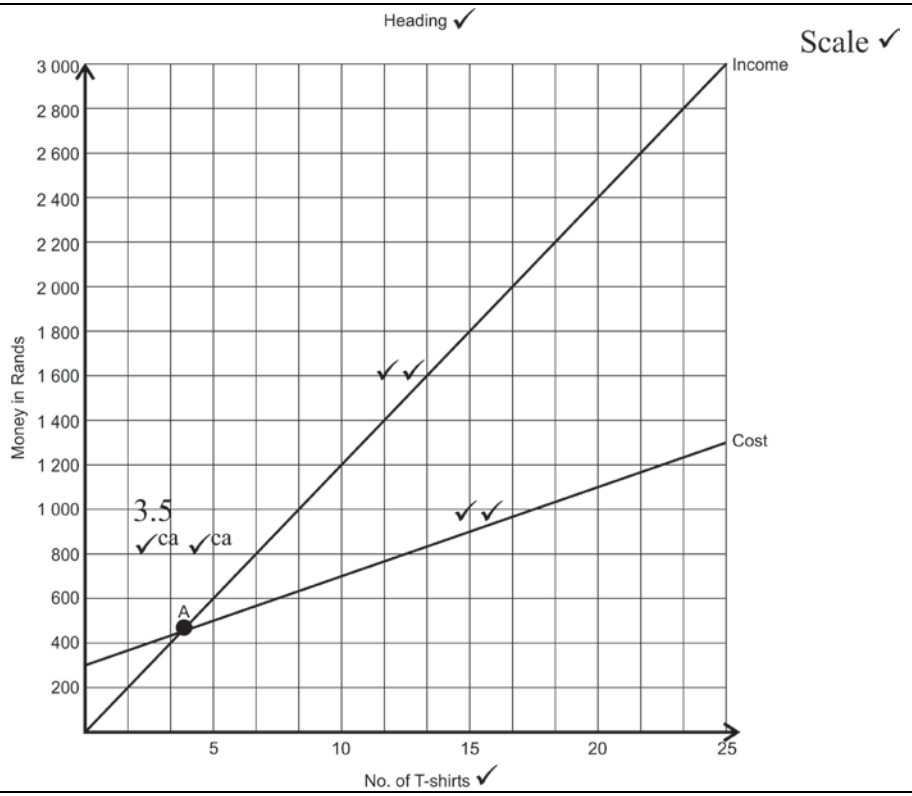
	or R299,70 + $\left(\frac{R299,70}{1}\times\frac{14}{100}\right)$ = R341,66						
1.10.1	R18,50 ÷ 9 [a] = R2,06 [ca] or $\frac{50g}{450g}$ × $\frac{R18,50}{1}$ = R2,06 [m] [ca]		(3)	12.2.2	1	2	
1.10.2	R28,50 ÷ 19 [a] = R1,50 [ca] ∴ 950 g is cheaper or $\frac{50g}{950g}$ × R28,50 [a] = R1,50 [ca]		(3)	12.2.1		2	1
	TOTALS				**19**	**21**	**5**

Question 2 – 21 marks							
2.1.1	V = 4 cm × 3 cm × 5 cm [m] = 60 cm^3 [a]		(2)	12.3.1	2		
2.1.2	W = 80 cm L = 60 cm Base Area 80 cm [m] × 60 cm = 4 800 cm^2 [m] = 4 800 cm^2 ÷ (4 × 3) cm^2 [ca] = 400 blocks [ca] or $\frac{80\text{ cm}}{4\text{ cm}}\times\frac{60\text{ cm}}{3\text{ cm}}$ = 20 × 20 = 400 blocks		(4)	12.3.1	1	1	2
2.2.1	3 460 miles		(1)	12.3.3	1		
2.2.2	(3460 + 6010) miles × 1,6 [m] = 9470 × 1,6 km [m] = 15152 km [ca]		(3)	12.3.1	1	1	1
2.2.3	$\frac{570\text{ miles}}{57\text{ minutes}}$ [m] [m] = 10 miles per minute [ca]		(3)	12.1.1 12.2.1	1	2	
2.2.4	19h13 – 17h45 = 1 hour [a] 28 minutes [a] or 88 minutes		(2)	12.3.3		1	1

2.3.1	Monthly amount owed with interest $= R3999\left(1 + \frac{15}{100} \bullet 3\right) \div 36$ [m] A = R5798,55 [ca] ÷ 36 [m] Total monthly amount = R161,07 + R30 = R191,07 [ca]		(4)	12.1.3	1	1	2
2.3.2	Total amount payable = R5798,55 [m] + 36 × R30 = R6878,55 [ca] or 191,07 × 36 = R6878,52		(2)	12.1.3	1	1	
	TOTALS				**8**	**7**	**6**

Question 3 – 28 marks							
3.1	C = 40 (10) [m] + 330 C = R730 [ca]	(2)	12.1.1 12.2.1	2			
3.2	P = R1200 [a] – [m] R730 Profit = R470 [ca]	(3)	12.1.1 12.2.1			3	
3.3		(10)	12.1.1 12.2.1	5	5		

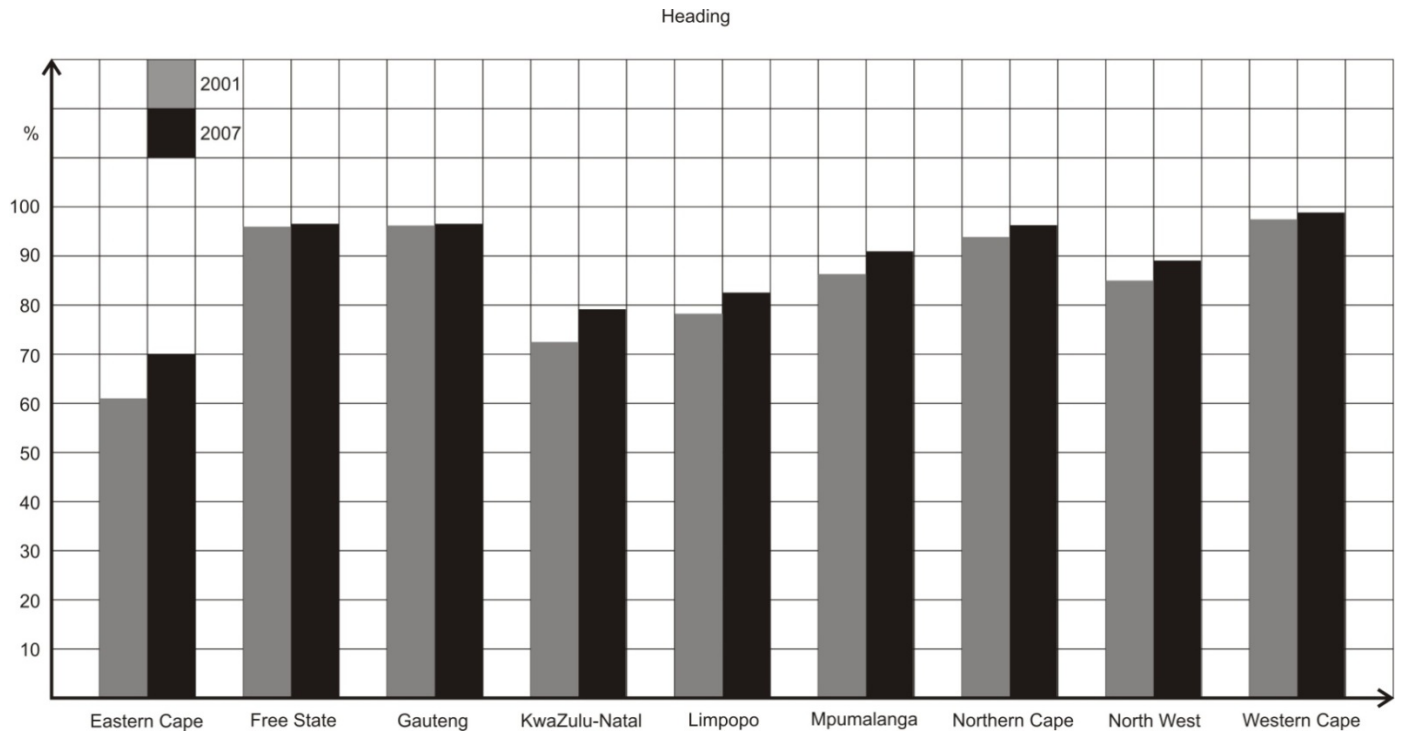
Number of T-shirts	**0**	**5**	**15**	**20**	**25**
Cost of T-shirts	**330** [ma]	**R530**	**R930**	**1130** [ma]	**R1330**
Money earned	**0**	**600** [ma]	**R1800**	**2400** [ma]	**3000** [ma]

3.4			(9)	12.2.2	7	2	
3.5	Plot A		(2)	12.2.1	2		
3.6	R1 110 ^{mca} (2 160 – 1 050) allow for reading off error ± R20		(2)	12.2.1		1	1
	TOTALS				**16**	**8**	**4**

Question 4 – 27 marks							
4.1.1	Area of circle $= \pi r^2$ $= \pi\ (0{,}25\ m)^{2\ m}$ $= 0{,}20\ m^{2\ mca}$ or $3{,}14\ (0{,}25\ m)^2 = 0{,}20\ m^2$		(3)	12.3.1 12.3.2	2	1	
4.1.2	Grass = $(10\ m \times 4\ m)^{\ m} - (5 \times 0{,}20\ m^2)^{\ m}$ (–) ^{m} $(2\ m \times 2\ m)^{\ m}$ $= 35\ m^{2\ ca}$ or $35{,}02\ m^2$		(5)	12.3.1	2	3	

4.1.3	Cost of grass = 70 $m^{2\ a} \times$ R25 ^{m} or 35 $m^{2\ a} \times$ R50 ^{m} = R1750 ^{ca} = R1 750 ^{ca} or 71 $m^2 \times$ R25 = R1 775 or 36 $m^2 \times$ R50 = R1 800		(3)	12.2.1	1	1	1
4.2.1	Volume = 2 m × 2 m $^{ca} \times$ 1,5 m $^{a\ m}$ = 6 $m^{3\ ca}$		(4)	12.3.1 12.3.2	2	2	
4.2.2	6 × 1000 ℓ = 6000 ℓ ^{m} Water required = 6000 ℓ × 90% ^{ca} = 5400 ℓ ^{ca}		(3)	12.3.2	2	1	
4.2.3	5400 ℓ ÷ 200 ℓ × 2 ^{m} = 27 × 2 fish ^{m} = 54 fish ^{ca}		(3)	12.3.2	1	2	
4.2.4	T.S.A = (2 m × 2 m) + 4 (2 m × 1,5 m) ^{m} = 16 $m^{2\ ca}$ 16 m^2 ÷ 10 = 1,6 ℓ ^{ca}		(3)	12.3.1	1	2	
4.3	20 $^{a} \times$ 60 ^{m} = 1200 ℓ ^{ca}		(3)	12.1.1 12.2.1	2	1	
	TOTALS				**13**	**13**	**1**

Question 5 – 29 marks							
5.1	48 500 000 = 4,85 $^{a} \times 10^{7\ a}$		(2)	12.4.1	2		
5.2	Eastern Cape		(2)	12.4.1	2		
5.3	Western Cape ^{mm}		(2)	12.4.1	2		
5.4	803,7% ^{a} ÷ 9 ^{m} = 89,3% ^{ca}		(3)	12.4.3	1	2	
5.5	98,3 ; 97,1 ; 95,7 ; 93,9 ; 86,6 ; 85,7 ; 78,1 ; 72,5 ; 63,2		(2)	12.4.1	2		
5.6	Range = 98,3 ^{m} – 63,2 ^{m} = 35,1 ^{a}		(3)	12.4.3	2	1	
5.7	97,9% $^{a} \times$ 135 482 = 132 636,88 ^{ca} 132 637 people		(4)	12.4.1		2	2

5.8	 Legend Plot bars *x*, *y* label Scale Census Community Survey (CS)	(11)	12.4.2	7	3	1
				18	**8**	**3**
	Grand Total Marks			**74**	**57**	**19**
	Percentage			**49%**	**38%**	**13%**