



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2010

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.

AO = answer only acceptable

Question	Possible answers and mark allocation	AO	Taxonomy level													
			L1	L2	L3	L4										
	Question 1 – 31 marks															
	<table border="0"> <tr> <td>Assessment Standards</td> <td>Marks allocated</td> </tr> <tr> <td>12.1.1 12.1.2</td> <td>8</td> </tr> <tr> <td>12.2.1</td> <td>8</td> </tr> <tr> <td>12.3.1 12.3.2 12.3.3</td> <td>8</td> </tr> <tr> <td>12.4.5</td> <td>8</td> </tr> </table>	Assessment Standards	Marks allocated	12.1.1 12.1.2	8	12.2.1	8	12.3.1 12.3.2 12.3.3	8	12.4.5	8					
Assessment Standards	Marks allocated															
12.1.1 12.1.2	8															
12.2.1	8															
12.3.1 12.3.2 12.3.3	8															
12.4.5	8															
1.1	$= \frac{12,5}{100} \times R364 \text{ m}$ $= R45,50 \text{ a}$		2													
1.2	$= \frac{90 \times 1000 \text{ m}}{1 \times 60 \times 60 \text{ s}} \text{ m}$ $= 25 \text{ m/s a}$		1	1												
1.3	$480 \text{ kg: R3 600} = 200 \text{ kg: R } x \text{ m} \text{ OR } \frac{R3600}{480 \text{ kg}} = \frac{R x}{200 \text{ kg}} \text{ m OR}$ $1 \text{ kg bag} = \frac{3600}{480} = R7,50^{\text{m}}$ $\therefore 200 \text{ kg} = R7,50 \times 200$ $= R1500 \text{ a}$ $= R1500,00 \text{ a}$		2	1												
1.4	$= \frac{245670 - 213500}{213500} \times 100\% \text{ m}$ $= 15,07\% \text{ a} \quad 15,0679 \text{ (un-rounded answer)}$		2	1												
1.5	$= 5\% \times R5\,000 \text{ m} + 2,5\% \times 15\,000 \text{ m} \quad \text{ca}$ $= R625 \text{ ca}$		1	3												
1.6	$= 318 \text{ kg} \times 2,204 \text{ m}$ $= 700,872$ $= 701 \text{ poundsa}$		1	1												

1.7	$A = 10\,000 \left(1 + \frac{6}{100}\right)^{10}$ m a of substitution $A = 17\,908,48$ ca		1	2		
1.8	Volume of display = $(1,8\text{ m} \times 4,6\text{ m} \times 2\text{ m})\text{ m} = 16,56\text{ m}^2\text{ a}$ Volume of 1 box = $(0,12\text{ m} \times 0,23\text{ m} \times 0,2\text{ m})\text{ m} = \frac{5520}{1000000}\text{ m}^3\text{ a} = 0,00552$ No of boxes to be ordered = $16,56 \div 0,00552 = 3000$ boxes to be ordered ca OR length : $\frac{4,6\text{ m}}{0,23\text{ m}} = 20$ boxes width : $\frac{2\text{ m}}{0,2\text{ m}} = 10$ boxes height : $\frac{1,8\text{ m}}{0,12\text{ m}} = 15$ boxes \therefore Total = $20 \times 10 \times 15$ $\therefore = 3\,000$ boxes		2	2	1	
1.9	1.9.1 $\frac{1}{8}$ a 1.9.2 $\frac{1}{7}$ a			2		
1.10	$\frac{600\text{ m}}{1000\text{ m}} = 0,6\text{ cm a}$ OR $600\text{ m} = 60000\text{ cm m}$ $\therefore 60000 \div 100000\text{ m} = 0,6\text{ cm a}$	} Must show calculations	1	2		
			13	17	1	

QUESTION 2 – 34 marks		AO				
Assessment Standards		Marks allocated				
	12.1.1 12.1.2 12.2.1 12.3.1 12.3.2 12.4.5	8 5 12 5				
2.1.1	= (350 + 778 + 228 + 432) children m = 1788 children a		2			
2.1.2	= $\frac{350}{1128} a \times 100 m = 31,03\% ca$ $\frac{350}{78} \times 100 = \frac{2}{4} ca$		2	2		
2.1.3	= $\frac{1210}{1788} a \times 100 m = 67,67\% ca$		2	2		
2.1.4	$\frac{228}{m} : \frac{432}{ca} = 19 : 36$ $\frac{19}{36}$ 19: 36		2			
2.1.5	a $\frac{578}{1788} = \frac{289}{894}$ acceptable if not in simplest form/accept % or decimal not 0,32 a (ratio acceted as an answer)		1	1		
2.2.1	$\frac{25}{100} \times R900 m = R225,00 a$ $R900 - R225 = R675 ca$ OR $\frac{75}{100} \times R900 = R675,00 ca$		2	1		
2.2.2	$\frac{2}{9} \times R900 m = R200,00 ca$ $R900 - R200$ OR $\frac{7}{9} \times R900 = R700$ $= R700 ca$		2	1		
2.2.3	$R225 - R200 m = R25,00 a$ or $R700 - R675 m = R25 ca$			2		
2.3.1	Circum of circle = $2 \times \pi \times 10 cm m = 62,83 cm a$ Area of strip required = $62,8 cm \times 15 cm m = 942 cm^2 ca$ $942,48 cm^2$		1	2	1	
2.3.2	Area of circles = $\pi \times 10 cm \times 10 cm = 314,16 cm^2 \times 2 circles m = 628,32 cm^2 a$ $\frac{20^m}{30}$ $\frac{1256,637}{2513,27}$ Total surface area = $942 cm^2 + 628 cm^2 m = 1570 cm^2 ca$ or $1570,80 cm^2$		1	3		
2.3.3	Volume of cylinder = $\pi \times 10 cm \times 10 cm \times 15 cm m = 4710 cm^3 a \div 1000 m = 4,71 litres ca$ 4712,39		1	3		
			16	17	1	

QUESTION 3 – 40 marks							AO					
	Assessment Standards 12.1.1 12.1.2 12.2.1 12.2.2 12.3.2 12.4.2				Marks allocated 16 9 8 6							
3.1	No of people	25	50	75	100	125		3	3			
	Total Cost	R425	= 50 × R17 m = R850 a	= 75 × R17 m = R1275 a	= 100 × R17 m = R1 700 a	R2 125						
3.2	No of people	25	50	75	100	125		4	4			
	Total Cost	R500ma	=R500 +12 × (50–25)m =R800a	R1100	=R500+12(100–25)m = R1400a	R 1700						
3.3	Cost of hiring Venue 2 = R500 m + R12 m × (number of guests – 25) $y = 12x + 200$								1	2		

<p>3.4</p>	<p>heading horizontal label vertical label horizontal values vertical values plotting, joining venue 1 plotting, joining venue 2 – Must use points from table legend, label of lines accuracy of 25, 500</p>	<p>Axes may be swapped and if all points are plotted correctly, learners must not be penalised.</p>		5	4		
<p>3.5</p>	<p>Plotting point A m a must be on point of intersection.</p>				2		
<p>3.6</p>	<p>Profit = (R120 tickets × 125 people) m – (R1 700) m = R13 300 ca</p>				2	1	
<p>3.7.1</p>	<p>(a) 23 words a 20 (b) 5 special characters a 5 (c) 20 digits a 20</p>			3			
<p>3.7.2</p>	<p>Total cost = (70c × 10) + (65c × 13) + (5c × 5) + (25c × 20) m m + R5 for border m = R 25,70 ca R23,75</p>				4		
<p>3.7.3</p>	<p>R25,70 × 125 invitations m = R3 212,50 for invitations ca 23,75 R2968,75</p>				1	1	
				15	21	4	

QUESTION 4 – 31 marks		AO				
	Assessment Standards	Marks allocated				
	12.1.1 12.1.2 12.2.1 12.2.3 12.3.1 12.3.2 12.4.2	5 8 12 9				
4.1	Area = $10 \text{ m} \times 6 \text{ m} = 60 \text{ m}^2$ a		2			
4.2	Quantity of paint = $85,7 \text{ m}^2 \div \text{m} (50 \text{ m}^2) \text{ m}$ OR valid reasoning given in words $\frac{3}{4} \quad 0,58 = 1,7$ tins ca therefore 2 tins need to be bought ca		1	2	1	
4.3.1	Floor tiles Area = $0,2 \times 0,2 \text{ m} = 0,04 \text{ m}^2$ a		2			
4.3.2	Number of Floor tiles = $60 \text{ m}^2 \div \text{m} (0,2 \text{ m} \times 0,2 \text{ m}) \text{ m} = 1500$ tiles ca		1	2		
4.3.3	Boxes of tiles = $60 \text{ m}^2 \div 1 \text{ m}^2 = 60$ boxes + 10% extra $\times 60 \text{ m} = 66$ boxes of tiles ca	×	1	2	1	
4.4.1	$R250 \times 3 \text{ m} = R750,00$ a		1	1		
4.4.2	$R750 \times 1,14 \text{ VAT} \text{ m} = R855,00$ ca or $R250 + R35 \text{m VAT} = R285$ a		1	1		
4.4.3	$R250,00 \div 11,84 \text{ m} = \text{£}21,11$ ca or $750 \div 11,84 \text{ m} = \text{£}63,34$ ca			2		
4.5.1	$200 + 18 + 12 + 20 + 110 \text{ m} = 360$ items sold a		2			
4.5.2	$110 \times 5 \text{m} = 550$ a		2			
4.5.3	$\frac{198}{360} \text{ m} \times 100 \text{ m} = 55,56\%$ ca OR $100\% \text{ m} - (31 + 5 + 3 + 6) \text{ m} = 55\%$ ca		3			
4.5.4	$\frac{6}{100} \times 360^\circ = 21,6^\circ$ OR $\frac{22}{360} \times 360^\circ \text{ m} = 22^\circ$ a OR just 22°		2			
4.5.5	Heading for graph, e.g. Tuckshop Fundraising for hostel conversion				1	
			18	10	3	

	QUESTION 5 – 14 marks	AO																												
	Assessment Standards 12.1.1 12.1.2 12.2.1 12.2.2 12.4.3	Marks allocated 2 6 7																												
5.1	5.1.1 Walking a 5.1.2 Car a			1																										
5.2	5.2.1 Other forms of transport a 5.2.2 Taxi a			1																										
5.3	$73,1\% \times 1\,200\,000\text{ m} = 877200\text{ learners a}$ OR $0,8\,8772\text{ million}$			2																										
5.4	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">Modes of transport</p> <table border="1" style="display: none;"> <caption>Data for Modes of transport chart</caption> <thead> <tr> <th>Type of transport</th> <th>South Africa (%)</th> <th>Australia (%)</th> </tr> </thead> <tbody> <tr> <td>Walk</td> <td>73</td> <td>38</td> </tr> <tr> <td>Car</td> <td>12</td> <td>34</td> </tr> <tr> <td>Bus</td> <td>6</td> <td>22</td> </tr> <tr> <td>Bicycle</td> <td>1</td> <td>2</td> </tr> <tr> <td>Train</td> <td>11</td> <td>1</td> </tr> <tr> <td>Taxi</td> <td>5</td> <td>1</td> </tr> <tr> <td>Other</td> <td>1</td> <td>1</td> </tr> </tbody> </table> </div> <p>heading horizontal label vertical label horizontal values vertical values plotting points legend</p>	Type of transport	South Africa (%)	Australia (%)	Walk	73	38	Car	12	34	Bus	6	22	Bicycle	1	2	Train	11	1	Taxi	5	1	Other	1	1		5	5		
Type of transport	South Africa (%)	Australia (%)																												
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Other	1	1																												
				5	9	0																								
	Grand total of thinking level			66	74	10																								
	Actual percentage			44	49	7																								
	Expected percentage			50	40	10																								