



Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE

GRADE 11

NOVEMBER 2012

MATHEMATICAL LITERACY P1 MEMORANDUM

MARKS: 100

SYMBOL	EXPLANATION
A	Accuracy
CA	Consistent Accuracy
C	Conversion
J	Justification (Reason/Opinion)
M	Method
MA	Method with accuracy
P	Penalty for no units, incorrect rounding off, etc.
R	Rounding off
RT/RG	Reading from table/graph
S	Simplification
SF	Correct substitution in a formula
O	Own opinion

This memorandum consists of 6 pages.

QUESTION 1			LO+AS	
1.1	1.1.1	<p>Sale Price of CD = $125 - 15\%$ ✓ M = R106,25 ✓ CA</p> <p>Or</p> <p>Sale Price of CD = $125 - (125 \times 0,15)$ ✓ M = $125 - 18,75$ = R106,25 ✓ CA</p>	<p>1M Method used 1CA Consistent accuracy</p> <p>1M Method used 1CA Consistent accuracy (2)</p>	11.1.3
	1.1.2	<p>Sale Price of DVD = $215 - (215 \times \frac{1}{4})$ ✓ M = $215 - 53,75$ ✓ CA = R161,25 ✓ A</p> <p>Or</p> <p>Sale Price of DVD = $215 - (215 \times 0,25)$ ✓ M = $215 - 53,75$ ✓ CA = R161,25 ✓ A</p> <p>Or</p> <p>Sale Price of DVD = $215 - (215 \times 25\%)$ ✓ M = $215 - 53,75$ ✓ CA = R161,25 ✓ A</p> <p>Or</p> <p>Sale Price of DVD = $215 - 25\%$ ✓ M = $215 - 53,75$ ✓ CA = R161,25 ✓ A</p>	<p>1M Correct method used 1CA Consistent accuracy 1A Accurate answer</p> <p>1M Correct method used 1CA Consistent accuracy 1A Accurate answer</p> <p>1M Correct method used 1CA Consistent accuracy 1A Accurate answer</p> <p>1M Correct method used 1CA Consistent accuracy 1A Accurate answer (3)</p>	11.1.3
1.2	1.2.1	Mowing Lawn = $\frac{45}{120}$ ✓ SF = $\frac{3}{8}$ ✓ CA	<p>1SF Correct substitution 1CA Accurate simplification (2)</p>	11.1.1
	1.2.2	<p>Watering the flowers: Time taken = $120 - 45 - 20 - 30$ ✓ SF = 25 minutes ✓ CA</p> <p>Watering time = $\frac{25}{120}$ ✓ SF = $\frac{5}{24}$ ✓ CA</p>	<p>1SF Correct values used 1CA Consistent Accuracy 1SF Correct values used 1CA Consistent Accuracy (4)</p>	11.1.1
1.3	1.3.1	<p>Flour = $\frac{600}{30} \times 50$ ✓ M = 1 000 g or 1 kg ✓ CA</p>	<p>1M Correct method used 1CA Consistent accuracy (2)</p>	11.1.1
	1.3.2	<p>Cheese = $\frac{450}{30} \times 50$ ✓ M = 750 g ✓ CA</p>	<p>1M Correct method used 1CA Consistent accuracy (2)</p>	11.1.1

1.4	1.4.1	Using; Distance = Speed x Time 561 = Speed x 6 ✓ SF $\therefore \text{Speed} = \frac{561}{6}$ ✓ M = 93,5 km/h ✓ CA = 94 km/h ✓ R	1SF Correct values substituted 1M Correct method used 1CA Consistent accuracy 1R Correctly rounded up (4)	11.1.1
	1.4.2	Litre/km = $\frac{561}{31,17}$ ✓ M = 17,9980..... ✓ CA = 18 km/litre ✓ R	1M Correct method used 1CA Consistent accuracy 1R Correctly rounded up (3)	11.1.3
	1.4.3	Cost of Petrol = 31,17 x 10,05 ✓ SF ✓ M = R313,2585 = R313,26 ✓ CA	1SF Correct values used 1M Correct method used 1CA Correct answer(3)	11.1.2 [25]

QUESTION 2			LO+AS	
2.1	Fixed expenses = R200 ✓ RG Rental, electricity, salaries, etc. Accept any logical answer here. ✓ O	1RG Correct reading from graph 1O Correct, logical opinion (2)		11.2.3
2.2	Expenses making coffee tables = wood, nails glue, etc. Accept any material needed. ✓ ✓ O	2O any 2 correct materials given (2)		11.2.1
2.3	Break-even = 6,5 ✓ RG = 7 tables ✓ CA	1RG Correct reading from graph 1CA Correct answer (2)		11.2.1
2.4	Expenses 20 tables = R500,00 ✓ RG ✓ A	1RG Correct reading from graph 1A Accuracy in reading (2)		11.2.1
2.5	Income 20 tables = R900,00 ✓ RG ✓ A	1RG Correct reading from graph 1A Accuracy in reading (2)		11.2.1
2.6	Profit 20 tables = 900 – 500 ✓ SF ✓ M = R400,00 ✓ CA	1SF Correct values 1M Correct method 1CA Consistent accuracy (3)		11.2.3
2.7	Selling Price 1 table = $900 \div 20$ ✓ SF ✓ M = R 45,00 ✓ CA Or Selling Price 1 table = $\frac{\text{change in } y (y_2 - y_1)}{\text{Change in } x (x_2 - x_1)}$ = $\frac{900-0}{20-0}$ (any correct graph values used) ✓ SF ✓ M = R45,00 ✓ CA	1SF Correct values 1M Correct method 1CA Consistent accuracy 1SF Correct values 1M Correct method 1CA Consistent accuracy (3)		11.2.3
2.8	Income 15 tables = 45 x 15 ✓ M = R675,00 ✓ CA	1M Correct method 1CA Consistent accuracy (2)		11.2.3

2.9	Profit would increase. ✓ O Reason: 60×20 tables = R1 200 ✓ M $\therefore 1\ 200 - 900 = \text{R}300$ more profit ✓ M ✓ CA	1O Correct opinion 1M Correct method with graph values used 1M Correct method 1CA accurate calculations (4)	11.2.3
2.10	No of tables sold = $\frac{585}{45}$ ✓ M = 13 tables ✓ CA	1M Correct method 1CA consistent accuracy (2)	11.2.1 [24]

QUESTION 3			LO+AS
3.1		✓ ✓ Correct net drawn with 6 rectangles ✓ ✓ correct measurements placed in required places (not all sides need measurements) (4)	11.3.1
3.2	Surface Area = $(2 \times 20 \times 25) + (2 \times 20 \times 7,5) + (2 \times 25 \times 7,5)$ ✓ ✓ ✓ SF and M = $1\ 000 + 300 + 375$ ✓ CA = $1\ 675\ \text{cm}^2$ ✓ CA	3 SF M correct values used and correct method x 3 1CA Consistent accuracy 1CA Correct answer (5)	11.3.1
3.3	Cost of cardboard = $1\ 675 \times 0,06$ ✓ M = 100,5 cents ✓ CA = 101 cents ✓ R	1M Correct method 1CA Consistent accuracy 1R Rounding up (3)	11.3.1
3.4	Cost of Printing = $1\ 675 \times 0,04$ ✓ SF ✓ M = 67 cents ✓ CA	1SF Correct values used 1M Correct method used 1CA Consistent accuracy (3)	11.3.1
3.5	Volume = $25 \times 20 \times 7,5$ ✓ SF ✓ M = $3\ 750\ \text{cm}^3$ ✓ CA	1SF Correct values used 1M Correct method used 1CA Consistent accuracy (3)	11.3.1
3.6	Grams in box = $3\ 750 \div 7,5$ ✓ SF ✓ M = 500 g cereal ✓ CA	1SF Correct values used 1M Correct method used 1CA Consistent accuracy (3)	11.3.2

3.7	<p>2 m x 100 = 200 cm and 15 m x 100 = 1 500 cm ✓ C Width of net = 7,5 + 25 + 7,5 = 40 cm ✓ M Length of net = 20 + 7,5 + 20 + 7,5 = 55 cm ✓ M 200 ÷ 40 = 5 widths 1500 ÷ 55 = 27,27 = 27 lengths ✓ C Number of boxes = 5 x 27 = 135 boxes ✓ CA</p> <p>Or 2 m x 100 = 200 cm and 15 m x 100 = 1 500 cm ✓ C Area of roll = 200 x 1 500 = 300 000 cm² ✓ ✓ MA Number of boxes = 300 000 ÷ 1 675 = 179,1044... = 179 boxes ✓ CA (1 mark less for not allowing for waste of space)</p> <p>Or Area of roll = 2 x 15 ✓ M = 30 m² ✓ A</p> <p>Surface Area of box in m² = $\frac{1675 \text{ cm}^2}{10000}$ ✓ C = 0,1675 m²</p> <p>Number of boxes = $\frac{30}{0,1675}$ = 179,104... = 179 boxes</p>	<p>1C conversion to cm 2 M Correct method 1C correct conversions 1CA Consistent accuracy (5) 1C Conversions to cm.</p> <p>1MA Correct method and accuracy</p> <p>1CA Consistent accuracy (4)</p> <p>2MA Method and Accuracy</p> <p>1C Conversion to m²</p> <p>1M Method</p> <p>1A Accuracy</p>	11.3.2
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QUESTION 4				LO+AS
4.1	4.1.1	Tazz ✓ RG	1 RG correct reading from graph (1)	11.4.4
	4.1.2	Mercedes ✓ RG	1 RG correct reading from graph (1)	11.4.4
	4.1.3	Suburb A much lower income than Suburb B because Suburb A purchases lower cost range of cars in the main. ✓ ✓ OR (Accept any logical opinion and reasoning.)	1O Opinion 1R Reason (2)	11.4.4
	4.1.4	Not a realistic picture ✓ O as it only deals with Johannesburg and not the rest of the country where less money is earned ✓ R (Accept any logical opinion and reasoning.)	1O Opinion 1R Reason (2)	11.4.4

4.2	4.2.1 (a)	$\begin{aligned} \text{Mean} &= 23+41+42+50+50+51+54+ \\ & 55+56+57+60+61+65+66+ \\ & 66+67+68+69+70+70+70+ \\ & \underline{72+74+76+79+82+85+86+88} \checkmark M \\ & \quad \quad \quad 29 \\ & = \frac{1853}{29} \checkmark MA \\ & = 63,89655\dots \\ & \approx 63,90 \checkmark CA \end{aligned}$	1M Correct Method 1MA Method and accuracy 1CA Consistent accuracy (3)	11.4.3																														
	(b)	<table border="1"> <tr><td>23</td><td>41</td><td>42</td><td>50</td><td>50</td><td>51</td></tr> <tr><td>54</td><td>55</td><td>56</td><td>57</td><td>60</td><td>61</td></tr> <tr><td>65</td><td>66</td><td>66</td><td>67</td><td>68</td><td>69</td></tr> <tr><td>70</td><td>70</td><td>70</td><td>72</td><td>74</td><td>76</td></tr> <tr><td>79</td><td>82</td><td>85</td><td>86</td><td>88</td><td></td></tr> </table> Mode = 70 \checkmark MA	23	41	42	50	50	51	54	55	56	57	60	61	65	66	66	67	68	69	70	70	70	72	74	76	79	82	85	86	88		1MA correct method used and accuracy (1)	11.4.3
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	4.2.2	<table border="1"> <thead> <tr> <th>Interval</th> <th>Frequency</th> </tr> </thead> <tbody> <tr><td>20 – 29</td><td>1</td></tr> <tr><td>30 – 39</td><td>0</td></tr> <tr><td>40 – 49</td><td>2</td></tr> <tr><td>50 – 59</td><td>7</td></tr> <tr><td>60 – 69</td><td>8</td></tr> <tr><td>70 – 79</td><td>7</td></tr> <tr><td>80 – 89</td><td>4</td></tr> </tbody> </table>	Interval	Frequency	20 – 29	1	30 – 39	0	40 – 49	2	50 – 59	7	60 – 69	8	70 – 79	7	80 – 89	4	1 Mark for each correct frequency in the following intervals 20 – 29 \checkmark 30 – 39 \checkmark 40 – 49 \checkmark 50 – 59 \checkmark 60 – 69 \checkmark 70 – 79 \checkmark 80 – 89 \checkmark (Any 4) (4)	11.4.2														
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70 – 79	7																																	
80 – 89	4																																	
	4.2.3	<p style="text-align: center;">Test Results</p>	1 Mark for correct frequency intervals added 1 Mark for correct graph used 3 Marks for any 3 correct bars on graph (5)	11.4.2																														
	4.2.4	Mean and median as both tell us that most learners got around the 60 – 69 mark. This is also shown by the histogram. \checkmark O \checkmark R (Accept all valid choices and reasons.)	1O Correct choice made 1R Valid reason given (2)	11.4.4																														
	4.2.5	The test was easy \checkmark O because most learners got above 50%. \checkmark R	1O Correct choice 1R Correct reason for choice (2)	11.4.4																														

[25]**TOTAL: 100**