



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICAL LITERACY P2

EXEMPLAR 2012

MEMORANDUM

MARKS: 75

Symbol	Explanation
M	Method
MA	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG	Reading from a table/Reading from a graph
SF	Correct substitution in a formula
O	Opinion/Example
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off/Reason

This memorandum consists of 7 pages.

QUESTION 1 [13]			
Ques	Solution	Explanation	Level
1.1.1	Base = $6 \times 15 \text{ cm} = 90 \text{ cm}$ ✓A Height = $3 \times 15 \text{ cm} = 45 \text{ cm}$ Area of a triangle = $\frac{1}{2} \times \text{base} \times \text{height}$ $= \frac{1}{2} \times 90 \text{ cm} \times 45 \text{ cm}$ ✓SF $= 2\,025 \text{ cm}^2$ ✓CA	1A length 1SF substituting 1 CA answer (3)	L3
1.1.2	Diameter = $4 \times 15 \text{ cm} = 60 \text{ cm}$ ✓A Radius = 30 cm ✓CA Area of a circle = $\pi \times (\text{radius})^2$ $= 3,142 \times (30 \text{ cm})^2$ ✓SF $= 2\,827,8 \text{ cm}^2$ ✓CA	1A diameter 1CA radius 1SF substituting 1CA answer (4)	L3
1.2.1	Length of tape = Perimeter of rectangle + Perimeter of square ✓SF ✓SF $= 2 \times 60 \text{ cm} + 2 \times 30 \text{ cm} + 4 \times 30 \text{ cm}$ $= 120 \text{ cm} + 60 \text{ cm} + 120 \text{ cm}$ ✓S $= 300 \text{ cm}$ ✓CA	1SF substituting into perimeter of rectangle 1SF substituting into perimeter of square 1S simplification 1CA answer (4)	L3
1.2.2	$300 \text{ cm} = 3 \text{ m}$ ✓C Cost = $R19,50 \times 3$ $= R58,50$ ✓CA	1C converting cm to m 1CA answer (2)	L3

QUESTION 2 [26]			
Ques	Solution	Explanation	Level
2.1.1	Tariff = R5,994 ✓ ✓RT	2RT reading values from table (2)	L2
2.1.2	$A = 40 \times R5,994 \quad \checkmark M$ $= R239,76 \quad \checkmark A$ OR $A = \frac{R273,33}{1,14} \quad \checkmark M$ $= R239,76 \quad \checkmark A$	1M multiplying/dividing 1A answer (2)	L2
2.2	$114\% \times \text{amount excluding VAT} = C$ $C = \frac{116,28}{114\%} \quad \checkmark M$ $= \frac{116,28}{1,14} \quad \checkmark A$ $= R102,00 \quad \checkmark A$	1M concept excluding VAT 1A dividing by 114% 1A simplification (3)	L3
2.3.1	The total due includes values, like rates, on which no VAT is charged (zero rated). ✓R ✓R	2R answer (2)	L4
2.3.2	VAT at B = R273,33 – R239,76 = R33,57 ✓CA VAT at D = R116,28 – R102,00 = R14,28 ✓CA Total VAT ✓M = R33,57 + R2,27 + R55,76 + R9,24 + R14,28 + R25,84 = R140,96	1CA VAT at B 1CA VAT at D 1M adding all the values (3)	L4

Ques	Solution	Explanation	Level
2.4	$\text{Monthly rates} = \text{Residential rate} \times \frac{\text{rateable value}}{12}$ $R732,38 = 1,89\% \times \frac{\text{rateable value}}{12} \quad \checkmark \text{SF}$ $\text{Rateable value} = \frac{12 \times R732,38}{0,0189} \quad \checkmark \text{M/A}$ $= R465\,003,17 \quad \checkmark \text{A}$	1SF substitution into formula 1M/A rearranging the formula 1A answer (3)	L4
2.5.1	Amount in rand $\checkmark \text{A}$ $= 6,20 \times 5,42 + (\text{amount used} - 6,20) \times 10,94 \quad \checkmark \text{A} \quad \checkmark \text{A}$	1A multiplying by 5,42 1M subtracting 6,20 1A multiplying by 10,94 (3)	L3
2.5.2	Graph A $\checkmark \checkmark \text{A}$ The graph shows that the tariff increases when more water is used. $\checkmark \checkmark \text{R}$ (Any other suitable explanation)	2A choice 2R reason (4)	L4
2.6.1	Mean $\checkmark \text{M}$ $= \frac{740 + 700 + 720 + 769 + 815 + 830 + 820 + 800 + 765 + 712 + 745 + 770}{12}$ $= \frac{9186}{12} \quad \checkmark \text{A}$ $= 765,50 \text{ kWh} \quad \checkmark \text{CA}$	1M finding mean 1A simplifying 1CA answer (3)	L3
2.6.2	During the school holidays in June, more people could be at home using electricity $\checkmark \text{O}$ June is a winter month, and the family could be using more electricity to keep themselves warm. $\checkmark \text{O}$ (Any other opinion/reason)	2O own opinion (2)	L4
2.6.3	$P(\text{less than } 710) = \frac{1}{12} \quad \checkmark \text{A} \quad \checkmark \text{A}$	1A numerator 1A denominator (2)	L3

QUESTION 3 [14]			
Ques	Solution	Explanation	Level
3.1	$\text{Number of screws} = \frac{24}{6}$ $= 4 \quad \checkmark\checkmark\text{A}$	2A answer (2)	L4
3.2	$\checkmark\text{A}$ Chair seat and stretcher $\checkmark\checkmark\text{A}$	1A chair seat 2A stretcher (3)	L4
3.3	Assemble the chair's side rails (C) to the front leg frame (B) using the $\checkmark\text{A}$ wood dowel (J) and the JCBC screw (G) and the spring washer (H). $\checkmark\text{A}$ $\checkmark\text{A}$ Tighten in a clockwise direction using the Allen key (K). $\checkmark\text{A}$	1A side rails and front leg frame 1A wood dowel, JCBC screw and spring washer 1A direction for tightening 1A Allen key (4)	L4
3.4	$\text{Area} = 42 \text{ cm} \times 41 \text{ cm} \quad \checkmark\text{SF}$ $= 1\,722 \text{ cm}^2 \quad \checkmark\text{A} \quad \checkmark\text{A}$	1SF substitution into formula 1A answer 1A correct unit (3)	L2
3.5	$\text{Scale height} = \frac{94 \text{ cm}}{23,5} \quad \checkmark\text{A}$ $= 4 \text{ cm} \quad \checkmark\text{A}$	1A using the scale 1A answer (2)	L3

QUESTION 4 [19]			
Ques	Solution	Explanation	Level
4.1.1	25; 29; 30; 30; 32; 35; 35; 38; 56; 56; 58; 58; 58; 67; 67; 70; 74; 76; 84; 85 ✓M Mode = 58% ✓ ✓ A	1M arranging data 2A mode (2)	L2 (1) L3 (1)
4.1.2	Range = 85% – 25% ✓M = 60% ✓CA	1M subtracting min and max values 1CA solution (2)	L2
4.1.3	Median = $\frac{56+58}{2}$ ✓A ✓M = 57% ✓CA	1A correct central values 1M dividing 1CA conclusion (3)	L3
4.2.1	P = 0 ✓A Q = 6 ✓ ✓A	1A solution 2A solution (3)	L2
4.2.2	P = $\frac{7}{20}$ ✓A ✓M = 0,35 ✓CA	1A denominator 1M writing probability 1CA answer (3)	L2

Ques	Solution	Explanation	Level																
4.2.3	NUMBER OF LEARNERS PER LEVEL <table><thead><tr><th>LEVEL</th><th>FREQUENCY</th></tr></thead><tbody><tr><td>Level 1</td><td>2</td></tr><tr><td>Level 2</td><td>6</td></tr><tr><td>Level 3</td><td>0</td></tr><tr><td>Level 4</td><td>5</td></tr><tr><td>Level 5</td><td>2</td></tr><tr><td>Level 6</td><td>3</td></tr><tr><td>Level 7</td><td>2</td></tr></tbody></table>	LEVEL	FREQUENCY	Level 1	2	Level 2	6	Level 3	0	Level 4	5	Level 5	2	Level 6	3	Level 7	2	1CA correct plotting of L2 1CA correct plotting of L3 1A correct plotting of L6 (3)	L3
LEVEL	FREQUENCY																		
Level 1	2																		
Level 2	6																		
Level 3	0																		
Level 4	5																		
Level 5	2																		
Level 6	3																		
Level 7	2																		
4.2.4	$\checkmark A$ Share = $\frac{3}{5}$ of R600 $= \text{R}360 \checkmark A$ Each learner's share = $\frac{\text{R}360}{2}$ $= \text{R}180 \checkmark A$	1A using ratio 1A simplifying 1CA answer (3)	L4																

TOTAL: 75