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.

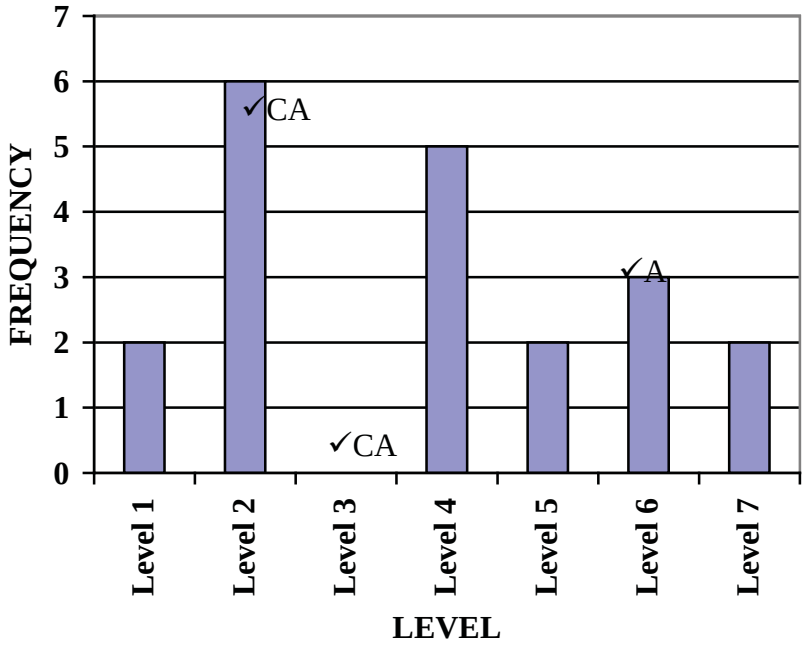
QUESTION 1 [13]			
Ques	**Solution**	**Explanation**	**Level**
1.1.1	Base = 6×15 cm = 90 cm ✓A Height = 3×15 cm = 45 cm Area of a triangle = $\frac{1}{2} \times$ base $\times$ height $= \frac{1}{2} \times 90 \text{ cm} \times 45 \text{ cm}$ ✓SF $= 2\,025 \text{ cm}^2$ ✓CA	1A length 1SF substituting 1 CA answer (3)	L3
1.1.2	Diameter = 4×15 cm = 60 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 cm + 60 cm + 120 cm✓S = 300 cm ✓CA	1SF substituting into perimeter of rectangle 1SF substituting into perimeter of square 1S simplification 1CA answer (4)	L3
1.2.2	300 cm = 3 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 × R5,994 ✓M = R239,76 ✓A **OR** $A = \frac{R273,33}{1,14}$ ✓M = R239,76 ✓A	1M multiplying/dividing 1A answer (2)	L2
2. 2	114% × amount excluding VAT = **C** $\mathbf{C} = \frac{116,28}{114\%}$ ✓M ✓A $= \frac{116,28}{1,14}$ = R102,00 ✓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	Monthly rates = Residential rate × $\frac{\text{rateable value}}{12}$ R732,38 = 1,89% × $\frac{\text{rateable value}}{12}$ ✓SF Rateable value = $\frac{12 \times \text{R732,38}}{0,0189}$ ✓M/A = R465 003,17 ✓A	1SF substitution into formula 1M/A rearranging the formula 1A answer (3)	L4
2.5.1	Amount in rand ✓A ✓A ✓A = 6,20 × 5,42 + (amount used – 6,20) × 10,94	1A multiplying by 5,42 1M subtracting 6,20 1A multiplying by 10,94 (3)	L3
2.5.2	Graph A ✓✓A The graph shows that the tariff increases when more water is used. ✓✓R (Any other suitable explanation)	2A choice 2R reason (4)	L4
2.6.1	Mean ✓M = $\frac{740+700+720+769+815+830+820+800+765+712+745+770}{12}$ = $\frac{9186}{12}$ ✓A = 765,50 kWh ✓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 ✓O June is a winter month, and the family could be using more electricity to keep themselves warm. ✓O (Any other opinion/reason)	2O own opinion (2)	L4
2.6.3	P(less than 710) = $\frac{1}{12}$ ✓A ✓A	1A numerator 1A denominator (2)	L3

QUESTION 3 [14]			
Ques	**Solution**	**Explanation**	**Level**
3.1	Number of screws = $\frac{24}{6}$ = 4 ✓✓A	2A answer (2)	L4
3.2	✓A ✓✓A Chair seat and stretcher	1A chair seat 2A stretcher (3)	L4
3.3	Assemble the chair's side rails (C) to the front leg frame (B) using the ✓A wood dowel (J) and the JCBC screw (G) and the spring washer (H). ✓A ✓A Tighten in a clockwise direction using the Allen key (K). ✓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	Area = 42 cm × 41 cm ✓SF = 1 722 cm^2 ✓A ✓A	1SF substitution into formula 1A answer 1A correct unit (3)	L2
3.5	Scale height = $\frac{94\,cm}{23{,}5}$ ✓A = 4 cm ✓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	✓A Median = $\frac{56+58}{2}$ ✓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**  	1CA correct plotting of L2 1CA correct plotting of L3 1A correct plotting of L6 (3)	L3
4.2.4	Share = $\frac{3}{5}$ ✓A of R600 = R360 ✓A Each learner's share = $\frac{R360}{2}$ = R180 ✓A	1A using ratio 1A simplifying 1CA answer (3)	L4

TOTAL: 75