



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## NATIONAL SENIOR CERTIFICATE

GRADE 12

**MATHEMATICAL LITERACY P1**

**FEBRUARY/MARCH 2017**

**FINAL MARKING GUIDELINE**

**MARKS: 150**

Symbol	Explanation
M	Method
M/A	Method with accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RD	Reading from table/graph/diagram
SF	Correct substitution in formula
O	Opinion/Example
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
AO	Answer only full marks
NPR	No penalty for rounding

**This memorandum consists of 14 pages.**

<b>QUESTION 1 [35 marks]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>Topic/L</b>
1.1.1	$\checkmark\checkmark A$ Amount deposited/paid <b>OR</b> Payments into the bank account. $\checkmark\checkmark A$	2A Definition (2)	F L1
1.1.2	$\checkmark\checkmark O$ Amount that is owed to the bank. <b>OR</b> Overdraft /borrowed from bank $\checkmark\checkmark O$ <b>OR</b> Money used above the available balance. $\checkmark\checkmark O$	2O Interpretation (2)	F L1
1.1.3	$\checkmark A$ $A = R8\ 906,94 - 2\ 765,66 \quad \checkmark M$ $= R6\ 141,28 \quad \checkmark CA$ <b>OR</b> $\checkmark M$ $A = - 2\ 765,66 + R8\ 906,94 \quad \checkmark A$ $= R6\ 141,28 \quad \checkmark CA$	1M adding 1A correct amounts 1CA value for A <b>OR</b> 1M adding 1A correct amounts 1CA value for A <b>AO</b> (3)	F L2
1.1.4	Total salary deposits $\checkmark MA$ $= R1\ 285,17 + R8\ 906,94 + R23\ 004,57$ $= R33\ 196,68 \quad \checkmark CA$	1MA adding all the amounts 1CA simplification (if one value omitted) <b>AO</b> (1 value omitted/added max 1) (2)	F L1
1.1.5	11 February was a Thursday $\checkmark M$ 26 February was a Friday $\checkmark A$ Total number of week days = 12 $\checkmark CA$	1M identifying day of week 1A day of week 1CA days <b>AO</b> (11 days 1 mark if AO but 2 marks if working shown) (3)	M L1

Ques	Solution	Explanation	Topic/L
1.1.6	Cash withdrawal fee $\checkmark$ MA $= R6,70 + R4,00 + 1,20\% \times R5\,490,00$ $= R6,70 + R4,00 + R65,88 \checkmark$ S $= R76,58 \checkmark$ CA	1MA adding/multiplication 1S simplification  1CA amount <b>AO</b> (Max 2 marks if R6,70 is omitted) (Max 1 mark if both R6,70 and R4,00 omitted)	F L2
1.1.7	External $\checkmark\checkmark$ A	2A correct statement	F L1
1.2.1	Final amount of money in the account after a year $\checkmark$ A $\checkmark$ M $\checkmark$ RT $= R9\,500 \times 106,4\%$ $= R10\,108$  <b>OR</b> Amount of interest earned after a year $\checkmark$ RT $= R9\,500 \times 6,4\%$ $= R608$ Final amount of money in the account after a year $\checkmark$ M $\checkmark$ A $= R9\,500 + R608$ $= R10\,108$	1RT reading from table 1M for adding percentages 1A multiplying correct values <b>OR</b> 1RT reading from table  1M for adding interest 1A multiplying correct values	F L2
1.2.2	Interest for six months $\checkmark$ RT $= 7,4\% \div 2$ $= 3,7\% \checkmark$ A Amount of interests earned after 6 months $= R10\,108 \times 3,7\%$ $= R374 \checkmark$ CA Final amount of money in the account after another 6 months $= R10\,108 + R374$ $= R10\,482,00 \checkmark$ CA  <b>OR</b>	1RT reading correct value (7,4%) from table  1A for calculating 6 month interest rate  1CA for interest  1CA for amount plus interest <b>OR</b>	F L2

Ques	Solution	Explanation	Topic/L
	<p style="text-align: center;"><b>OR</b></p> <p>Interest for six months  <math>\checkmark</math> RT  <math>= 7,4\% \div 2</math>  <math>= 3,7\%</math> <math>\checkmark</math> A</p> <p>Final amount of money in the account after 6 more months  <math>= 1,037 \times R10\ 108</math> <math>\checkmark</math> M  <math>= R10\ 482,00</math> <math>\checkmark</math> CA</p>	<p style="text-align: center;"><b>OR</b></p> <p>1RT reading correct value(7,4%) from table 1A for calculating 6 month interest rate</p> <p>1M adding and multiplying interest 1CA amount plus interest  <b>AO</b>                      (4)</p>	
1.3.1	<p>The increase <math>\checkmark</math>O in the price <math>\checkmark</math>O for goods and services from one period to another period</p> <p style="text-align: center;"><b>OR</b></p> <p>Inflation is the rise <math>\checkmark</math>O over time in prices <math>\checkmark</math>O of goods and services.</p>	<p>1O increase                      1O price of goods or services                      (2)</p>	F L1
1.3.2	<p>Number of hours worked = <math>\frac{514,80}{11,44}</math> <math>\checkmark</math> A <b>OR</b> <math>\frac{476,55}{10,59}</math> <math>\checkmark</math> A  <math>\checkmark</math> A <math>\checkmark</math> A</p> <p style="text-align: center;"><b>OR</b></p> <p>Monthly wage = <math>45 \times R11,44</math> <math>\checkmark</math> A or <math>45 \times R10,59</math> <math>\checkmark</math> A  <math>= R514,80</math> <math>\checkmark</math> A <math>= R476,55</math> <math>\checkmark</math> A</p>	<p>1A numerator                      1A denominator</p> <p>1A hours                      1A rate                      (2)</p>	F L1
1.3.3	<p>Minimum monthly rate (B) = <math>\frac{r \times w}{12}</math></p> <p style="text-align: center;"><math>\checkmark</math>SF <math>\checkmark</math>A  <math>= \frac{514,80 \times 52}{12}</math>  <b>B = 2 230,80</b> <math>\checkmark</math>CA</p> <p><b>OR</b></p> <p>Minimum monthly rate (B) = <math>2\ 065,05 \div 10,59 \times 11,44</math> <math>\checkmark</math>MA <math>\checkmark</math>MA  <math>= 2\ 230,80</math> <math>\checkmark</math>CA</p>	<p>1SF substitution correct value</p> <p>1A for multiplying by 52</p> <p>1CA simplification</p> <p><b>OR</b></p> <p>1MA divide by 10,59                      1MA multiply by 11,44</p> <p>1CA simplification</p> <p><b>AO</b> (3)  <math>(4 \times 514,80 = R2059,20)</math>                      Max 1 mark</p>	F L2

Ques	Solution	Explanation	Topic/L
1.3.4 (a)	$\begin{aligned} \text{Total minimum wage} &= 40 \text{ hours} \times \overset{\checkmark \text{ MA}}{\text{R}11,44} \text{ per hour} \\ &= \text{R}457,60 \quad \checkmark \text{ CA} \end{aligned}$	1MA multiplying  1CA simplification <b>AO</b>  (2)	F L1
1.3.4 (b)	$\begin{aligned} &\text{Actual hourly rate for one domestic worker} \\ &= \frac{\text{R}550,90}{40 \text{ hour}} \quad \checkmark \text{ M} \\ &= \text{R}13,7725 \text{ per hour} \quad \left. \right\} \checkmark \text{ CA} \\ &= \text{R}13,77 \text{ per hour} \end{aligned}$	  1M dividing by weekly hours  1CA hourly rate  <b>AO</b> <b>NPR</b>  (2)	F L2
		<b>[35]</b>	

<b>QUESTION 2 [28 marks]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>Topic/L</b>
2.1.1	<p>End time = 18:15 + 25 min                      = 18:40 ✓MA ✓A                      Time set aside = time from 14:00 to 18:40 ✓M                      = 4 hours 40 min or <math>4\frac{2}{3}</math> hr or 4,67 hrs                      ✓CA</p> <p><b>OR</b></p> <p>Time set aside for start of last items                      = time from 14:00 to 18:15 ✓A                      = 4 hours 15 min ✓MA                      Time set aside = 4 hours 15 min + 25 min ✓M                      = 4 hours 40 min or <math>4\frac{2}{3}</math> hr or 4,67 hrs                      ✓CA</p>	<p>1MA calculating end time                      1A using time on table                      1M subtracting                      1CA total time</p> <p>1A using time on table                      1MA calculating time                      1M adding                      1CA total time</p> <p><b>AO</b>                      (4)                      [omitting time (25 min) max 3 marks]</p>	M L2
2.1.2	<p>Difference in mass = 800 g - 600 g                      = 200 g ✓CA                      ✓MA</p>	<p>1MA subtracting correct mass                      (reversing values-no penalty)                      1CA mass                      (Identifying correct weights only max 1 mark)</p> <p><b>AO</b> (2)</p>	M L1
2.1.3	<p>17 years ✓A                      17:05 ✓✓RT/CA</p>	<p>1A correct age                      2RT /CA reading from table                      (3)                      18 years 16:05 (Max 2 marks for 16:05)</p>	M L2
2.2.1	<p>Obese ✓✓RT</p>	<p>2RT weight status                      (2)</p>	M L1
2.2.2	<p>Height in inches = <math>6 \times 12 + 3</math>                      = 75 } ✓M</p> <p>BMI = <math>\frac{200}{75 \times 75} \times 703</math> ✓C                      ✓SF                      = 24,99556 ✓CA                      = 25 ✓R</p>	<p>1M multiplying/adding                      1C conversion                      1SF substitution                      1CA simplification                      1R rounding  <b>AO</b> (5)</p>	M L2

Ques	Solution	Explanation	Topic/L
2.3.1	Total length of podium $= 50 \text{ cm} + 50 \text{ cm} + 50 \text{ cm} \quad \checkmark M$ $= 150 \text{ cm} \div 100$ $= 1,5 \text{ m} \quad \checkmark C$	1M adding  1C converting to m  <b>AO</b>  (2)	M L2
2.3.2	$C = 37,5 \div 5 \times 4 \quad \checkmark M$ $= 30 \text{ cm}$  <p style="text-align: center;"><b>OR</b></p> $C = 22,5 \div 3 \times 4 \quad \checkmark M$ $= 30 \text{ cm} \quad \checkmark A$  <p style="text-align: center;"><b>OR</b></p> Number of parts $= 5 + 4 + 3 = 12$ $\frac{5}{12} \times \text{total height of podium} = 37,5 \quad \checkmark M$ $\text{Total height of podium} = \frac{450}{5}$ $= 90 \quad \checkmark A$  $C = 90 - 37,5 - 22,5 \quad \text{or} \quad C = \frac{4}{12} \times 90$ $= 30 \quad \checkmark A$	1A correct values 1M using ratio 1A simplification  <p style="text-align: center;"><b>OR</b></p> 1A correct values  1M using ratio  1A simplification  1M using ratio  1A height of podium  1A simplification <b>AO</b>  (3)	M L2
2.3.3	Volume = length $\times$ breadth $\times$ height $= 50 \text{ cm} \times 50 \text{ cm} \times 37,5 \text{ cm} \quad \checkmark SF$ $\checkmark CA$ $= 93\,750 \text{ cm}^3 \quad \checkmark A$	1SF substitution 1CA volume 1A unit <b>AO</b>  (3)	M L2

Ques	Solution	Explanation	Topic/L
2.3.4	$500 \text{ ml} = 500 \text{ cm}^3 \quad \checkmark \text{C}$ $\text{Height} = \frac{500 \text{ cm}^3}{3,142 \times (3,77)^2 \text{ cm}^2} \quad \checkmark \text{SF}$ $= 11,196 \dots \text{ cm} \quad \checkmark \text{CA}$ $\approx 11 \text{ cm} \quad \checkmark \text{R}$	1C conversion  1SF substitution (accept 500 ml)  1CA simplification  1R rounding (Incorrect conversion max 3 marks) AO  (4)	M L2
		[28]	



<b>QUESTION 3 [ 23 marks]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>Topic/L</b>
3.1.1	Bethulie ✓✓A	2A correct town (2)	MP L1
3.1.2	(a) left/east ✓ A (b) Douglas ✓ A (c) right hand side ✓ A	1A correct direction 1A correct street 1A correct side (3)	MP L1
3.1.3	N1 ✓✓A	2A National road (2)	MP L1
3.1.4	✓ A ✓ A ✓ A R701 , R390 , R58  <b>OR</b> only R58 ✓✓✓A	3A provincial roads (3)	MP L1
3.1.5	✓ A ✓ A <span style="border-top: 1px solid black; padding-top: 2px;">Smithfield, Bethulie and Venterstad</span> ✓ A Zastron, Rouxville,	1A first town 1A second town 1A last three towns (3)	MP L2
3.1.6	Map : Actual ✓ A ✓ M 42 mm : 72,9 km  42 mm : 72 900 000 ✓ C  10 : 17 357 142,86 ✓ C A	1A measurement [accept 40 to 43 mm] 1M scale concept  1C conversion  1CA simplified scale [Accept 18 225 000 to 16 953 488,37] <b>NPR</b> (Ratio reversed max 3 marks) (4)	MP L3
3.2.1	11 ✓✓RT	2RT reading from diagram (15 one mark) (2)	MP L1
3.2.2	Clockwise ✓✓A	2A direction (2)	MP L1
3.2.3	Voting booths ✓✓A	2A correct point (2)	M L1
		<b>[23]</b>	

<b>QUESTION 4 [39 marks]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>Topic/L</b>
4.1.1	E ✓✓A	2A correct description (2)	D L1
4.1.2	B ✓✓A	2A correct description (2)	D L1
4.2.1	$\frac{3}{10} \times 100\%$ = 30% ✓CA	1A numerator 1A denominator  1CA percentage <b>AO</b> (3)	P L2
4.2.2	72; 109; 118; 137; 137; 144; 144; 146; 162; 168  Median = $\frac{137+144}{2}$ = 140,5 ✓CA	1MA arranging (ascending or descending)  1M median concept  1CA median <b>AO</b> (Wrong column used Max 2 marks) (3)	L2 D
4.2.3	39 % and 41% ✓A	1A mode 1 1A mode 2 (Wrong column used Max 1 mark for both modes) (2)	L1 D
4.2.4	G ✓✓RT	2RT correct learner (Accept 7 <sup>th</sup> learner) (2)	D L1
4.2.5	$382\% \div 10$ = 38,2% OR 38%  <b>OR</b> $\frac{1337}{10 \times 350} \times 100\%$ = 38,2% OR 38% OR accept 0,382 OR 0,38	1M mean concept 1MA adding correct values 1CA mean % mark  <b>OR</b>  1M mean concept 1MA adding correct values 1CA mean % mark  <b>AO</b> (3)	D L2

Ques	Solution	Explanation	Topic/L
4.2.6	$\text{New SBA \%} = \frac{137 \checkmark A}{300 \checkmark A} \times 100\%$ $\approx 46\% \checkmark CA$ <p style="text-align: center;"><b>OR</b></p> $\frac{137}{6} = 23$ $= \frac{\checkmark A}{50 \checkmark A} \times \frac{100}{1}$ $\approx 46\% \checkmark CA$	1A numerator 1A denominator  1CA percentage  <p style="text-align: center;"><b>OR</b></p> 1A numerator  1A denominator  1CA percentage  <b>AO</b> <b>NPR</b>  (3)	D L2
4.3.1	B $\checkmark \checkmark A$	2A correct statement  (2)	D L1
4.3.2	Indian/Asian $\checkmark RT$ 15 – 19 $\checkmark RT$	1RT race group 1RT age group  (2)	D L1
4.3.3	$Y = 2\,334\,819 + 2498\,098 = 4\,832\,917 \checkmark CA$ <p style="text-align: center;"><b>OR</b></p> $Y = 426\,156 + 430\,667 + 431\,779 + 437\,412 + 1\,558\,886 + 1\,150\,775 + 365\,544 + 31\,698 \checkmark MA$ $Y = 4\,832\,917 \checkmark CA$	1MA adding 1CA total  <p style="text-align: center;"><b>OR</b></p> 1MA adding  1CA total  <b>AO</b>  (2)	P L1
4.3.4	$\frac{2334819 \checkmark RT}{54957764} \times 100\% \checkmark M$ $= 4,25\% \checkmark CA$	1RT correct values 1M Probability as a %  1CA percentage  <b>AO</b> <b>NPR</b>  (3)	D L2

Ques	Solution	Explanation	Topic/L
4.3.5	$\begin{aligned} & \checkmark\text{RT} \\ & 674\ 730 : 688\ 118 \checkmark\text{A} \\ & = 337\ 365 : 344\ 059 \checkmark\text{CA} \end{aligned}$	1RT correct values 1A ratio concept 1CA simplified ratio in correct order (Correct unit ratio max 2) (3)	D L1
4.3.6	$\begin{aligned} & \checkmark\text{RT} \\ & \frac{2\ 498\ 098}{54\ 957\ 764} \times 100\% \checkmark\text{M} \\ & = 4,545486967..% \checkmark\text{CA} \end{aligned}$	1RT correct values 1M multiply by 100%  1CA Percentage <b>AO</b> <b>NPR</b> (3)	D L2
4.3.7	20–39 $\checkmark\checkmark\text{RT}$	2RT correct age group (2)	D L1
4.3.8	Bar graph <b>OR</b> B $\checkmark\checkmark\text{RT}$	2RT correct graph type (2)	D L1
		<b>[39]</b>	

<b>QUESTION 5 [25 marks]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>Topic/L</b>
5.1.1	Checkers ✓✓A	2A correct supermarket (2)	F L1
5.1.2	$X = R440,85 - R(19,99 + 7,99 + 14,99 + 89,99 + 46,99 + 15,99 + 9,99 + 31,99 + 19,99 + 25,99 + 76,99 + 19,99 + 23,99 + 17,99)$ $X = R440,85 - R422,86$ $= R17,99 \quad \checkmark CA$	1MA adding/subtracting  1CA simplification <b>AO</b>  (2)	F L1
5.1.3	Difference = R15,99 – R13,50 ✓MA  = R2,49 ✓CA	1MA subtracting correct values 1CA simplification (accept –R2,49) <b>AO</b>  (2)	F L1
5.1.4	9 ✓✓A	<b>[CA from Q 5.1.2]</b> 2A correct number (2)	F L1
5.1.5	Cabbage ✓✓A Milk ✓A	2A first product 1A second product (3)	F L1
5.1.6	Eggs ✓✓A	2A product (2)	F L1
5.1.7	Difference in cost $= R(49,99 - 36) \times 2,5 \quad \checkmark A \checkmark M \checkmark A \quad \checkmark M \quad \text{OR} \quad R(49,99 \times 2,5 - 36 \times 2,5)$ $= R 34,98 \quad \checkmark CA$ <p style="text-align: center;"><b>OR</b></p> Woolworths = R49,99 × 2,5 ✓M = R124,98 ✓A  P n P = R36,00 × 2,5 = R90,00 ✓A  Difference in cost = R124,98 – R90,00 ✓M = R34,98 ✓CA	2A correct prices 1M for subtracting prices 1M multiplying  1CA simplification  <p style="text-align: center;"><b>OR</b></p> 1M multiplying with correct price  1A simplification  1A simplification  1M for subtracting prices  1CA simplification  (5)	F L2

Ques	Solution	Explanation	Topic/L
5.2.1	Checkers ✓✓A	2A correct supermarket (2)	F L1
5.2.2	Woolworths ✓✓A <b>OR</b> PnP ✓✓A	2A correct supermarket (2)	F L1
5.2.3	Difference = R 479,44 <sup>✓A</sup> – R208,74 ✓M = R 270,70 ✓CA <b>OR</b> Difference = R 440,85 <sup>✓A</sup> – R208,74 ✓M = R 232,11 ✓CA	1A correct values 1M subtraction 1CA simplification  1A correct values 1M subtraction 1CA simplification AO (3)	F L1
		[25]	
<b>TOTAL</b>			<b>150</b>