



# basic education

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

## SENIOR CERTIFICATE EXAMINATIONS

### MATHEMATICAL LITERACY P1

2018

### MARKING GUIDELINES

**MARKS: 150**


SYMBOL	EXPLANATION
M	Method
MA	Method with accuracy
MCA	Method with consistent accuracy
CA	Consistent accuracy
A	Accuracy
C	Conversion
S	Simplification
RT/RG/RP	Reading from a table/graph/plan
SF	Correct substitution in a formula
O	Opinion/Example/Definition/Explanation
P	Penalty, e.g. for no units/incorrect rounding off, etc.
R	Rounding off
NPR	No penalty rounding or omitting units
AO	Answer only, if correct, full marks


**NOTE:** If there is an additional incorrect answer mark as follows:  
If the solution contains the word "OR", then penalty of 1 mark  
If the solution contains the word "AND", then mark only the first solution with a penalty of 1 mark.

**These marking guidelines consist of 15 pages.**

<b>Question 1 [31 MARKS]AO Full Marks</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>T/L</b>
1.1.1	Horizontal/double/compound/multiple $\checkmark$ O bar graph $\checkmark$ O	1O type 1O bar graph (2)	D L1
1.1.2	71,6%; 51%; 10,3%; 7,3%; 6,6% $\checkmark$ RT $\checkmark$ A	1RT reading all correct values 1A descending order If Johannesburg is used max 1 mark (2)	D L1
1.1.3	Step 6 $\checkmark\checkmark$ A	2A identifying correct Step Accept any identification in step 6 for Cape Town (2)	F L1
1.1.4	Cape Town $\checkmark\checkmark$ A	2A stating Cape Town Accept JHB Step 1 full marks (2)	F L1
1.1.5	Cost = 3,5 kℓ $\checkmark$ RT $\times$ R7,14 = R24,99 $\checkmark$ A	1RT for R7,14 1A simplification CA only if R4,56 is used Accept R25 full marks (2)	F L1
1.1.6	Numerical $\checkmark\checkmark$ A	2A stating numerical Accept numerically full marks (2)	D L1
1.2.1	Selling price minus profit $\checkmark\checkmark$ A  <b>OR</b>  The amount of money needed (for raw material, labour, etc.) to make an item $\checkmark\checkmark$ A	2A correct definition  Accept: Amount you pay for buying stock/clocks Money you receive without profit. Price before mark-up is added. (2)	F L1
1.2.2	Cost price = R3 350 $\checkmark$ RT $-$ R914 = R2 436 $\checkmark$ A	1RT correct values 1A simplification (2)	F L1

Ques	Solution	Explanation	T/L
1.2.3	✓A 22:08 ✓A	1A correct hours 1A correct minutes (2)	M L1
1.2.4	✓MA Total profit = R914 + R60 + R573 + R1623 = R3170,00 ✓CA	1MA adding all correct values 1CA simplification (2)	F L1
1.3.1	Converting scale reading ✓M = 394 g ÷ 1 000 = 0,394 kg ✓A	1M dividing by 1 000 1A simplification (2)	M L1
1.3.2	✓M New reading = 394 – 128 = 266g ✓A	1M subtracting correct values 1A simplification (2)	M L1
1.3.3	✓M ✓M ✓A Peach = 394 – 128 – (128 ÷ 2) = 394 – 192 = 202 g  <b>OR</b>  Plum = 128 g ÷ 2 ✓M = 64 g ✓A  Peach = 266 g – 64 g ✓M = 202 g	1M subtraction from 394 1M dividing 128 by 2 1A for 192  <b>OR</b>  1M dividing pear by 2 1A plum 64g  1M subtracting two values (3)	M L1
1.3.4	0% <b>OR</b> 0 <b>OR</b> $\frac{0}{3}$ ✓✓A	2A solution Accept impossible - full marks (2)	P L1
1.3.5	394g : 128g ✓M 197 : 64 ✓A	1M concept of ratio 1A ratio without units Accept: Reverse the order with simplification one mark  Unit ratio 1: 0,325 <b>OR</b> 3,08:1 one mark  Correct fractional form – full marks (2)	M L1
		[31]	

<b>QUESTION 2 [38MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>T/L</b>
2.1.1	December ✓✓A  <b>OR</b>  The twelfth month of the year ✓✓A  <b>OR</b>  The last month of the year ✓✓A	2A correct month  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">             Accept:               Mid Nov. to mid Dec. } Full              Nov / Dec } marks              12 }               8/9/15 Dec max one mark              (2)           </div>	F L1
2.1.2	The overall limit exceeded ✓✓A  	2A correct code description  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">             Accept:               Owe supplier } Full              Funds exhausted } marks               Code (870) only max one mark              (2)           </div>	F L1
2.1.3	Dr Dhlamini ✓✓RT	2RT name  (2)	F L1
2.1.4	$\text{Increased amount} = R736,90 \times \frac{6,3}{100} = R46,42 \quad \checkmark\text{MA}$ $\text{New price} = R46,42 + R736,90 \quad \checkmark\text{MCA}$ $= R783,32 \quad \checkmark\text{CA}$ <p style="text-align: center;"><b>OR</b></p> $\text{Increased percentage} = 100\% + 6,3\% = 106,3\% \quad \checkmark\text{MA}$ $\text{New price} = R736,90 \times \frac{106,3}{100} \quad \checkmark\text{MCA}$ $= R783,32 \quad \checkmark\text{CA}$	1MA calculating 6,3%  1MCA adding the values  1CA simplification  <p style="text-align: center;"><b>OR</b></p> 1MA calculating 106,3%  1MCA multiplication  1CA simplification  (3)	F L2

Ques	Solution	Explanation	T/L
2.1.5	$\begin{aligned} \text{Tax claimable} &= \text{R}5\,326,66 - \text{R}445,10 \\ &= \text{R}4\,881,56 \checkmark \text{A} \end{aligned}$	<b>AO</b> 1RT correct values 1A Simplification (2)	F L2
2.1.6	$\checkmark \checkmark \text{O}$ Money the member must pay to the suppliers.	2O for correct definition <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">                         Accept: Full Marks                           Amount of money not paid by the scheme.                           Money owed to the scheme.                     </div> (2)	F L1
2.1.7	$\begin{aligned} \text{Total amount} & \quad \checkmark \text{RT} \quad \quad \quad \checkmark \text{M} \\ &= \text{R}173,03 + \text{R}117,44 + \text{R}61,50 + \text{R}80,98 + \text{R}46,80 \\ &= \text{R}479,75 \end{aligned}$ <p style="text-align: center;"><b>OR</b></p> $\begin{aligned} \text{Total amount} & \quad \checkmark \text{RT} \quad \quad \quad \checkmark \text{M} \\ &= \text{R}1\,661,75 - \text{R}736,90 - \text{R}445,10 \\ &= \text{R}479,75 \end{aligned}$	1RT all correct values 1M adding values <p style="text-align: center;"><b>OR</b></p> 1RT all correct values 1M subtracting values (2)	F L1
2.2.1	Value Added Tax $\checkmark \checkmark \text{A}$ 	2A acronym written out (2)	F L1
2.2.2	$\begin{aligned} \checkmark \text{RT} \\ \text{VAT} &= \text{R}988,00 \times \frac{14\%}{114\%} \quad \checkmark \text{M} \\ &= \text{R}121,333333 \\ &\approx \text{R}121,33 \quad \checkmark \text{A} \end{aligned}$ <p style="text-align: center;"><b>OR</b></p> $\begin{aligned} \checkmark \text{RT} \\ \text{VAT} &= \text{R}988,00 \div 1,14 \times 0,14 \quad \checkmark \text{M} \\ &= \text{R}121,333333 \\ &\approx \text{R}121,33 \quad \checkmark \text{A} \end{aligned}$ <p style="text-align: center;"><b>OR</b></p> $\begin{aligned} \checkmark \text{RT} \\ \text{VAT} &= \text{R}988 - \left( \frac{\text{R}988}{1,14} \right) \quad \checkmark \text{M} \\ &= \text{R}988 - \text{R}866,666.. \\ &\approx \text{R}121,33 \quad \checkmark \text{A} \end{aligned}$	1RT using correct value 1M multiplying by $\frac{14\%}{114\%}$  1A Simplification <p style="text-align: center;"><b>OR</b></p> 1RT using correct value 1M dividing by 1,14 and multiplying by 0,14  1A Simplification <p style="text-align: center;"><b>OR</b></p> 1RT using correct value 1M dividing by 1,14 and subtracting  1A Simplification (3)	F L2

Ques	Solution	Explanation	T/L
2.2.3	$\text{Difference} = \text{R}223 - \text{R}13 \quad \checkmark\text{M}$ $= \text{R}210 \quad \checkmark\text{A}$	<b>AO</b> 1M subtracting correct values 1A simplification Accept: –R210 full marks (2)	F L1
2.3.1	Exchange rate $\text{R}1 = 0,797782 \text{ Botswana pula} \quad \checkmark\checkmark\text{RT}$ <p style="text-align: center;"><b>OR</b></p> $1\text{BWP} = \text{R}1,253475 \quad \checkmark\checkmark\text{RT}$	2RT correct exchange rate (2)	F L1
2.3.2	Rupee $\checkmark\text{A}$ Dinar $\checkmark\text{A}$ Yen $\checkmark\text{A}$	1A rupee 1A dinar 1A yen Accept: Currency values or name of country - max 2 marks (3)	L1 F
2.3.3 a	$\text{Cost price} = \text{ZAR } 13 \times 0,797782 \quad \checkmark\text{M}$ $= \text{BWP } 10,37 \quad \checkmark\text{A}$ <p style="text-align: center;"><b>OR</b></p> $\text{Cost price} = 13 \text{ ZAR} \div 1,253475 \quad \checkmark\text{M}$ $= \text{BWP } 10,37 \quad \checkmark\text{A}$	<b>AO</b> CA from Q2.3.1 if ratio listed 1M multiplying correct values 1A Simplification <p style="text-align: center;"><b>OR</b></p> 1M dividing correct values 1A Simplification No penalty for unit (2)	F L2
2.3.3 b	$\text{Profit} = (\text{SP} - \text{CP}) \times \text{number sold}$ $7\,526 = (48 - 10,37) \times \text{number sold} \quad \checkmark\text{SF}$ $\text{Number sold} \times 37,63 = 7\,526 \quad \checkmark\text{CA}$ $\text{Number sold} = \frac{7\,526}{37,63} \quad \checkmark\text{MCA}$ $= 200 \quad \checkmark\text{CA}$	CA from Q2.3.3a 1SF substitution 1CA simplification 1MCA dividing 1CA simplification (4)	F L3

Ques	Solution	Explanation	T/L
2.3.4	Number of shares $3+2=5$ ✓A  Errol's share of the profit  $= \frac{2}{5} \times \text{BWP } 7\,526$ ✓M $= \text{BWP } 3\,010,40$ ✓CA	<b>AO</b> 1A for calculating 5  1M multiplying correct values  1CA Errol's profit share No penalty for units (3)	F L2
2.3.5	Algerian dinar = $\frac{1}{9,546785}$ ✓A $= 0,104747$	1A numerator 1A denominator  (2)	F L2
		<b>[38]</b>	



<b>QUESTION 3 [21 MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>T/L</b>
3.1.1	$\begin{aligned} \text{Number of pallets} &= 12 \times 2 \checkmark\text{MA} \\ &= 24 \checkmark\text{A} \end{aligned}$	<b>AO</b> 1MA multiply 12 by 2 1A simplification (2)	M L1
3.1.2	$\begin{aligned} \text{Height of the table} &\checkmark\text{RT} \\ &= 145\text{mm} + 145\text{mm} + 200\text{mm} \checkmark\text{M} \\ &= 490 \text{ mm} \checkmark\text{CA} \end{aligned}$	1RT using correct values 1M adding correct values 1CA simplification  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">             Accept:              adding 145 and 200 max 2              marks           </div> (3)	M L1
3.1.3	$\begin{aligned} \text{Area} &= \text{length} \times \text{width} \\ &\checkmark\text{RT} \\ &= 1\,200 \text{ mm} \times 1\,050 \text{ mm} \checkmark\text{SF} \\ &= 1\,260\,000 \text{ mm}^2 \checkmark\text{CA} \end{aligned}$	1RT reading of correct values 1SF substituting correct values 1CA simplification (3)	M L2
3.1.4	$\begin{aligned} \text{Perimeter of glass top} &\checkmark\text{RT} \quad \checkmark\text{M} \\ &= 1\,200\text{mm} + 1\,050\text{mm} + 1\,200\text{mm} + 1\,050 \text{ mm} \\ &= 4\,500 \text{ mm} \checkmark\text{CA} \end{aligned}$ <p style="text-align: center;"><b>OR</b></p> $\begin{aligned} \text{Perimeter} &= 2 \times (\text{length} + \text{width}) \checkmark\text{M} \\ &= 2 \times (1\,200 \text{ mm} + 1\,050 \text{ mm}) \checkmark\text{SF} \\ &= 2 \times 2\,250 \text{ mm} \\ &= 4\,500 \text{ mm} \checkmark\text{CA} \end{aligned}$	<b>AO</b> 1RT reading all correct values 1M adding correct values 1CA simplification  <p style="text-align: center;"><b>OR</b></p> 1M correct formula (P = 2L + 2B) 1SF substitution  1CA simplification (3)	M L1



Ques	Solution	Explanation	T/L
3.2.1	<p>Length of ribbon  <math>= \pi \times \text{diameter} + \text{overlap}</math>  <math>\checkmark C</math>  <math>= 3,142 \times 11\text{cm} + 2\text{cm} \checkmark SF</math>  <math>= 36,562 \text{ cm} \checkmark \checkmark CA</math></p> <p style="text-align: center;"><b>OR</b></p> <p>Length of ribbon  <math>= \pi \times \text{diameter} + \text{overlap}</math>  <math>= 3,142 \times 110 \text{ mm} + 20 \text{ mm} \checkmark SF</math>  <math>= 365,62 \text{ mm} \checkmark \checkmark CA</math>  <math>= 36,562 \text{ cm} \checkmark C</math></p>	<p>1C converting diameter to 11 cm                      1SF substituting in formula                      2CA simplification</p> <p style="text-align: center;"><b>OR</b></p> <p>1SF substituting in formula                      2CA simplification in mm                      1C converting to cm</p> <div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin: 10px auto;"> <b>Accept 37 cm full marks</b> </div> <p style="text-align: right;">(4)</p>	M L2
3.2.2 a	<p>Inner diameter = <math>110 - 5 - 5</math> }                      Inner radius = <math>100 \text{ mm} \div 2</math> } <math>\checkmark MA</math>  <math>= 50 \text{ mm} \checkmark CA</math></p> <p style="text-align: center;"><b>OR</b></p> <p>Inner radius = <math>55\text{mm} - 5 \text{ mm} \checkmark MA</math>  <math>= 50 \text{ mm} \checkmark CA</math></p>	<p><b>AO</b>                      1MA subtracting 5 twice and dividing by 2                      1CA simplification</p> <p style="text-align: center;"><b>OR</b></p> <p>1MA subtracting 5 from the radius                      1CA simplification</p> <p style="text-align: right;">(2)</p>	M L1
3.2.2 b	<p>Volume of cylinder  <math>= \pi \times \text{radius}^2 \times \text{height}</math>  <math>\checkmark SF</math>  <math>= 3,142 \times (50\text{mm})^2 \times 48\text{mm} \checkmark A</math>  <math>\checkmark CA</math>  <math>= 377\,040\text{mm}^3 \checkmark A</math></p>	<div style="border: 1px solid black; padding: 2px; text-align: center; width: fit-content; margin-bottom: 10px;">                         CA from Q3.2.2 a                     </div> <p>1A for calculating 48                      1SF substituting radius from Q3.2.2a                      1CA simplification                      1A for correct unit</p> <p style="text-align: right;">(4)</p>	M L2
		<b>[21]</b>	

<b>QUESTION 4 [25MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>T/L</b>
4.1.1	7 ✓✓RP	2RP correct store number Accept Shop number 9 full marks  (2)	MP L1
4.1.2	Parking 2 ✓✓RP	2RP correct parking number Accept 2 full marks  (2)	MP L1
4.1.3	Woolworths ✓✓RP	2RP correct shop name Accept: Woolworths with additional shop maximum 1 mark  (2)	MP L1
4.1.4	Turn right as you exit the Crazy Daisy Shop ✓A Turn right towards Entrance 1 Turn left towards Entrance 2 ✓A Pass two shops then turn right ✓A Shop number 18 will be on your right ✓A  <b>OR</b> Turn right as you exit the Crazy Daisy Shop ✓A Turn right towards Entrance 1 Continue straight towards Entrance 1 ✓A Turn left passing Checkers heading towards Entrance 4 ✓A Then turn left towards shop 18 ✓A	1A turn right  1A turn left  1A turn right  1A on your right  <b>OR</b> 1A turn right  1A continue straight 1A turn left  1A turn left  Accept: Using shops as landmarks  (4)	MP L2

Ques	Solution	Explanation	T/L
4.1.5	27 doors ✓✓A	2A correct number of doors (2)	MP L2
4.1.6	$P_{(2 \text{ entrances})} = \frac{2}{23} / 0,087/8,7\%$ ✓A ✓A	1A numerator 1A denominator Accept: $\left. \begin{array}{l} \frac{3}{23} \\ \frac{3}{21} \end{array} \right\} \text{ Full Marks}$ $\left. \begin{array}{l} \frac{3}{21} \end{array} \right\} \text{ Max 1 mark}$ (2)	P L2
4.1.7	$P_{(\text{not an even number})} = \frac{12}{23}$ ✓A ✓CA	1A numerator 1CA denominator from Q4.1.6 Accept as CA from Q4.1.6 $\left. \begin{array}{l} \frac{11}{21} \end{array} \right\} \text{ Full Marks}$ (2)	P L2



Ques	Solution	Explanation	T/L
4.2.1	Top view of the coffee shop. ✓✓A  <b>OR</b>  Top view of the shop without the roof. ✓✓A	2A explanation  <div style="border: 1px solid black; padding: 5px;">Accept: Aerial view without the roof Layout of a home from above</div>  (2)	MP L1
4.2.2	Bathroom <b>OR</b> Wash room <b>OR</b> Rest room ✓✓RP	2RP reading from plan  <div style="border: 1px solid black; padding: 5px;">Accept: Toilet, Cloak room, Ablution, Loo, Ladies, Gents</div>  (2)	MP L1
4.2.3	South-East / SE ✓✓RP	2RP reading from plan  (2)	MP L1
4.2.4	70 mm : 15 m  70 : 15 000 ✓C  1 : 214,2857143 ✓S  1 : 214 ✓CA	1C convert to mm  1S simplification  1CA answer  <div style="border: 1px solid black; padding: 5px;">Accept 1 : 215</div>  (3)	MP L3
			<b>[25]</b>

<b>QUESTION 5 [35 MARKS]</b>			
<b>Ques</b>	<b>Solution</b>	<b>Explanation</b>	<b>T/L</b>
5.1.1	September ✓✓RT	2RT read from table Accept: Sep/Sept/ 9 <sup>th</sup> month full marks September and another month maximum 1 mark (2)	D L1
5.1.2	Mean income $= \frac{(238+266+254+238+233+216+247+251+275+269+254+198)\text{million}}{12}$ $= \frac{2\,939\text{ million}}{12} \quad \checkmark\text{M}$ $= \text{R}244,9166667 \text{ million} / \text{R}244\,916\,666,7 \quad \checkmark\text{CA}$	1RT correct values 1M concept of mean 1CA answer in millions  Omitted millions Max 2 marks (3)	D L2
5.1.3	$\frac{743}{12\,343} \times \frac{100}{1} \% \quad \checkmark\text{M}$ $= 6,02\% \quad \checkmark\text{CA}$	1RT correct values 1M multiply by 100 1CA simplify (3)	D L1
5.1.4	45 905 000 ✓✓RT <b>OR</b> 45 905 thousand ✓✓RT	2RT correct value from table  45 905 only max 1 mark (2)	D L1
5.1.5	Sixty five million one hundred and sixty eight thousand ✓A	1RT reading from table as is 1A correct wording with millions (2)	D L1
5.1.6	Median = $\frac{1015+1020}{2} \quad \checkmark\text{M}$ $= 1\,017,5 \text{ million} \quad \checkmark\text{CA}$	<b>AO</b> 1MA identifying correct middle values 1M concept of median 1CA simplification Penalty 1 for omitting millions (3)	D L2
5.1.7	$P_{(\text{less than } 200\,000\,000)} = \frac{1}{12} \quad \checkmark\text{A}$ $= 0,08333333 \quad \checkmark\text{CA}$	<b>AO</b> 1A numerator 1A denominator 1CA decimal form <b>NPR</b> (3)	P L2

Ques	Solution	Explanation	T/L																					
5.1.8	<p style="text-align: center;"><b>COMPARISON BETWEEN INCOME FOR RAIL AND ROAD TRANSPORTATION</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Data for Comparison Between Income for Rail and Road Transportation</caption> <thead> <tr> <th>Month</th> <th>Rail Income</th> <th>Road Income</th> </tr> </thead> <tbody> <tr> <td>Jul</td> <td>247</td> <td>770</td> </tr> <tr> <td>Aug</td> <td>251</td> <td>770</td> </tr> <tr> <td>Sep</td> <td>275</td> <td>840</td> </tr> <tr> <td>Oct</td> <td>269</td> <td>770</td> </tr> <tr> <td>Nov</td> <td>254</td> <td>785</td> </tr> <tr> <td>Dec</td> <td>198</td> <td>805</td> </tr> </tbody> </table> <p> <input type="checkbox"/> Rail Income  <input checked="" type="checkbox"/> Road Income                 </p>	Month	Rail Income	Road Income	Jul	247	770	Aug	251	770	Sep	275	840	Oct	269	770	Nov	254	785	Dec	198	805		D L2
Month	Rail Income	Road Income																						
Jul	247	770																						
Aug	251	770																						
Sep	275	840																						
Oct	269	770																						
Nov	254	785																						
Dec	198	805																						
<p>1A for each correctly plotted bar × 6                      If graph is drawn on top of other graph (full marks)                      Perfect line graph (3/6)</p>			(6)																					

Ques	Solution	Explanation	T/L
5.2.1	Total number of households for Grants: $= [2768 - (1404 + 216 + 123 + 180 + 7 + 117 + 7)] \text{ thousand}$ $= 714\ 000 \text{ households}$ <p style="text-align: center;"><b>OR</b></p> $(2768 - 1404 - 216 - 123 - 180 - 7 - 117 - 7) \text{ thousand}$ $= 714\ 000 \text{ households}$	1M subtracting from 2 768 1MA adding values 1CA simplification  <p style="text-align: center;"><b>OR</b></p> 1M subtracting from 2 768 1MA continuous subtraction 1CA simplification  (3)	D L1
5.2.2	Business	2RG correct source  (2)	D L1
5.2.3	Difference $= 216\ 000 - 28\ 000$ $= 188\ 000$	<b>AO</b> 1RT correct values  1M subtracting  1A simplification  <div style="border: 1px solid black; padding: 5px; width: fit-content;">                         Penalty 1 for omitting thousands                     </div> (3)	D L1
5.2.4	Remittance $= \frac{64\ 000}{532\ 000} \times \frac{100}{1} \%$ $= 12,03\%$	1RT correct values 1M percentage  1CA simplification  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <math display="block">\frac{64}{532\ 000} \times \frac{100}{1} \% = 0,012</math>                         maximum 2 marks                     </div> (3)	D L2
<b>[35]</b>			
<b>TOTAL: 150 MARKS</b>			