



**GAUTENG PROVINCE**  
EDUCATION  
REPUBLIC OF SOUTH AFRICA

**GAUTENG DEPARTMENT OF EDUCATION**  
**PREPARATORY EXAMINATION**  
**2020**  
**MARKING GUIDELINES**

**MATHEMATICAL LITERACY P1 (10601)**

<b>Codes</b>	<b>Explanation</b>
M	Method
MA	Method with Accuracy
MCA	Method with Continuous Accuracy
CA	Consistent Accuracy
A	Accuracy
C	Conversion
D	Define
J	Justification / Reason / Explain
S	Simplification
RT / RD / RG	Reading from a table OR a graph OR a diagram OR a map OR a plan
F	Choosing the correct formula
SF	Substitution in a formula
O	Opinion
P	Penalty, e.g. for no units, incorrect rounding-off, etc.
R	Rounding-off
NP	No penalty for rounding-off OR omitting units

**KEY TO TOPIC SYMBOL:**

**F = Finance; M = Measurement; MP = Maps, Plans and other representations ;  
DH = Data Handling; P = Probability**

## QUESTION 1

Q	ANSWER	EXPLANATION	LEVEL
1.1			
1.1.1	Value Added Tax ✓✓A	2 A correct wording (2)	F1
1.1.2	$R75,90 \times \frac{15}{100}$ ✓MA = R11,385 = R11,39 ✓ A	1 MA multiply by 15% or 0,15 1 A answer <b>No penalty for rounding</b> (2)	F1
1.1.3	$R13,99 \times \frac{9,5}{100}$ ✓MA = R1,32905 = R13,99 + R1,32905 = R15,31905 = R15,32 ✓ A <b>OR</b> $R13,99 \times \frac{109,5}{100}$ ✓MA = R15,31905 = R15,32 ✓ A	1 MA Multiply by 9,5%, 0,095, 109,5% or 1,095 1 A answer <b>No penalty for rounding</b> (2)	F1
1.1.4	$R13\ 500 \times \frac{1}{100}$ ✓MA = R135,00 ✓A	1 MA multiply by 1% or 0,01 1 A correct answer (2)	F1
1.1.5	Gross Income is the income you receive before any deductions, for example pension fund, tax or UIF. ✓✓J <b>OR</b> The sum of all wages, salaries or earnings before any deductions or taxes.	2 J explanation <b>Accept any other RELEVANT explanation</b> (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
1.1.6	$\frac{8,5\%}{365} \checkmark \text{MA}$  $= 0,023287671\%$ $= 0,0233\% \quad \checkmark \text{A}$	1 MA divide by 365 1 A correct answer  <b>Penalty for incorrect rounding</b>  (2)	F1
1.1.7	$R2\ 000 \times \frac{0,0233}{100} \checkmark \text{MCA}$  $= R0,466 \checkmark \text{CA}$	<b>CA from Q.1.1.6</b> 1 MCA multiply by 0,0233% or 0,000233 1 CA answer  (2)	F1
1.2			
1.2.1	800 inches x 2,5 cm $\checkmark \text{MA}$ $= 2\ 000 \text{ cm} \checkmark \text{A}$	1 MA multiply by 2,5 1 A answer  (2)	M1
1.2.2	Perimeter = (2 x length) + (2 x width) $= (2 \times 30 \text{ m}) + (2 \times 20 \text{ m}) \checkmark \text{SF}$ $= 60 \text{ m} + 40 \text{ m}$ $= 100 \text{ m} \checkmark \text{CA}$	1 SF substitute in formula 1 CA answer  (2)	M1
1.2.3	$\frac{30 \text{ m}}{1,5 \text{ m}} \checkmark \text{MA}$  $= 20 \text{ concrete slabs} \checkmark \text{A}$	1 MA divide by 1,5 1 A answer  (2)	M1
1.2.4	$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$  $^{\circ}\text{C} = \frac{5}{9} (90^{\circ} - 32) \checkmark \text{SF}$  $= 32,2222222 \dots$ $= 32^{\circ} \checkmark \text{R}$	1 SF substitute in formula 1 R correct rounded answer  (2)	M1
1.3			
1.3.1	17 $\checkmark \checkmark \text{A}$	2 A answer  (2)	DH1
1.3.2	$\frac{2}{15}$ <b>or</b> 0,134 <b>or</b> 13,34% $\checkmark \checkmark \text{A}$	2 A answer  (2)	P1
1.3.3	Range = Max – Min $= 45 - 9 \checkmark \text{MA}$ $= 36 \checkmark \text{A}$	1 MA correct values 1 A answer  (2)	DH1
1.3.4	$\frac{9}{50} \times 100 \checkmark \text{MA}$  $= 18\% \checkmark \text{A}$	1 MA correct values 1 A answer  <b>Answer only, full marks</b>  (2)	DH1
			<b>[30]</b>

## QUESTION 2

Q	ANSWER	EXPLANATION	LEVEL
2.1			
2.1.1	R7,99 x 3,8 kg ✓ MA = R30,36 ✓ A	1 MA multiplication 1 A answer (2)	F1
2.1.2	Cost price = $\frac{R720}{120}$ ✓ MA  Cost price = R6,00 ✓ A	1 MA division 1 A answer (2)	F1
2.1.3	Income = R720,00 x 1,2 ✓ MA = R864,00 = R864,00 x 2 ✓ M = R1 728,00 ✓ CA  <b>OR</b>  Income = R720,00 x $\frac{20}{100}$ ✓ MA  = R144,00 = R720,00 + R144,00 = R864,00 = R864,00 x 2 ✓ M = R1 728,00 ✓ CA  <b>OR</b>  Income = R720,00 x $\frac{120}{100}$ ✓ MA  = R864,00 = R864,00 x 2 ✓ M = R1 728,00 ✓ CA	1 MA multiply by 1,2 1 M multiply by 2 1 CA answer  1 MA multiply by $\frac{20}{100}$ 1 M multiply by 2 1 CA answer  1 MA multiply by $\frac{120}{100}$ 1 M multiply by 2 1 CA answer (3)	F1
2.1.4	% Increase = $\frac{\text{Difference between amounts}}{\text{Original amount}} \times 100$  ✓ SF = $\frac{R23,25 - R15,50}{R15,50} \times 100$  = $\frac{R7,75}{R15,50} \times 100$  = 50% ✓ A	1 SF substitute in formula 1 A answer (2)	F2

Q	ANSWER	EXPLANATION	LEVEL
2.2			
2.2.1	$\text{Years} = \frac{60 \text{ months}}{12 \text{ months}} \checkmark \text{ MA}$ $= 5 \text{ years} \checkmark \text{ A}$	1 MA divide by 12 1 A answer  <div style="border: 1px solid black; padding: 2px; display: inline-block;"><b>Answer only, full marks</b></div> (2)	F1
2.2.2	$\text{Deposit} = R174\,900 \times \frac{10}{100} \checkmark \text{ MA}$ $= R17\,490 \checkmark \text{ A}$	1 MA multiply by 10% or 0,1 1 A answer  <div style="border: 1px solid black; padding: 2px; display: inline-block;"><b>Answer only, full marks</b></div> (2)	F1
2.2.3	$\text{Loan amount} = R174\,900 - R17\,490 \checkmark \text{ M}$ $= R157\,410 \checkmark \text{ CA}$	<b>CA from Q 2.2.2</b> 1 M subtract deposit 1 CA answer  (2)	F1
2.2.4	$\text{Interest p.a.} = R157\,410 \times \frac{14}{100} \checkmark \text{ MCA}$ $= R22\,037,40 \text{ p.a.}$ <p>Interest for 5 years = <math>R22\,037,40 \times 5 \checkmark \text{ M}</math>  <math>= R110\,187 \checkmark \text{ CA}</math></p> <p><b>OR</b></p> $\text{Interest p.a.} = R157\,410 \times \frac{14}{100} \checkmark \text{ MCA}$ $= R22\,037,40 \text{ p.a.}$ $= R22\,037,40 + R22\,037,40 + R22\,037,40 + R22\,037,40 + R22\,037,40 \checkmark \text{ M}$ $= R110\,187,00 \checkmark \text{ CA}$ <p><b>OR</b></p> $A = \frac{P \times r \times n}{100}$ $A = \frac{R157\,410 \times 14 \times 5}{100} \checkmark \text{ MCA}$ $A = R110\,187,00 \checkmark \text{ CA}$	<b>CA from Q 2.2.3</b> 1 MCA multiply by 14% or 0,14 1 M multiply with 5 1 CA answer  (3)	F1
2.2.5	<p>Monthly instalment:</p> $= \frac{R267\,597}{60} \checkmark \text{ M}$ $= R4\,459,95 \checkmark \text{ CA}$	1 M divide by 60 1 CA answer  (2)	F1

Q	ANSWER	EXPLANATION	LEVEL
2.3			
2.3.1	<p>Total expenses 2017/18:  R251,1 bn + R205,4 bn + R259,4 bn + R196,3 bn + R200,1 bn + R200,8 bn + R194,2 bn + R64,0 bn ✓ MA  = R1 571,3 bn ✓ A</p> <p>Total expenses 2018/19:  R351,1 bn + R259,4 bn + R205,4 bn + R200,8 bn + R200,1 bn + R196,3 bn + R194,2 bn + R64,0 bn ✓ MA  = R1 671,3 bn ✓ A</p> <p>Difference = R1 671,3 bn – R1 571,3 bn ✓ M  = R100 bn ✓ CA</p>	<p>1 MA addition  1 A answer  1 MA addition  1 A answer  1 M subtraction  1 CA answer</p>	F2
2.3.2	<p>Social Development ✓ A</p> <p>R259,4 bn – R205,4 bn ✓ MA  = R54 bn ✓ A</p>	<p>1 A answer  1 MA subtraction  1 A answer</p>	F2
2.3.3	<p><math>\% \text{ Decrease} = \frac{\text{New Amount} - \text{Old Amount}}{\text{Old Amount}} \times 100 \quad \checkmark \text{ F}</math></p> <p><math>\checkmark \text{ SF}</math>  <math>= \frac{\text{R205,4 bn} - \text{R259,4 bn}}{\text{R259,4 bn}} \times 100</math>  <math>\checkmark \text{ SF}</math></p> <p><math>= \frac{-\text{R54 bn}}{\text{R259,4 bn}} \times 100</math></p> <p>= - 20,82% ✓ CA</p>	<p>1 F formula  1 SF numerator  1 SF denominator  1 CA answer</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>NP – Do not penalise if learners swopped numerators and got a positive answer</b></p> </div>	F2
			<b>[33]</b>

## QUESTION 3

Q	ANSWER	EXPLANATION	LEVEL
3.1			
3.1.1	<p>Perimeter is the total distance around a two dimensional (2D) shape. ✓✓ J</p> <p><b>OR</b></p> <p>Perimeter is the total length of all the sides of a two dimensional (2D) shape.</p>	<p>2 J explanation</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p><b>Accept any other RELEVANT explanation</b></p> </div> <p>(2)</p>	M1
3.1.2	<p>Total to fit = <math>\frac{\text{Height of rectangular prism}}{\text{Height of one ice cream sandwich}}</math></p> <p>Total = <math>\frac{17 \text{ cm}}{3 \text{ cm}}</math> ✓ M</p> <p>Total = 5,66666 ...</p> <p>Total = 5 ✓ R</p>	<p>1 M divide by 3 cm</p> <p>1 R correct rounding</p> <p>(2)</p>	M2
3.1.3	<p>Volume = <math>\pi \times (\text{radius})^2 \times \text{height}</math> ✓ F</p> <p>Volume = <math>3,142 \times (3,5 \text{ cm})^2 \times 3 \text{ cm}</math> ✓ SF</p> <p>Volume = 115,4685</p> <p>Volume = 115,47 ✓ CA <math>\text{cm}^3</math> ✓ U</p>	<p>1 F correct formula</p> <p>1 SF substitute in formula</p> <p>1 CA answer</p> <p>1 U unit</p> <p>NPR</p> <p>(4)</p>	M2

Q	ANSWER	EXPLANATION	LEVEL
3.1.4	$\text{BMI} = \frac{\text{Mass in kg}}{(\text{Height in m})^2}$ $29,38 \text{ kg/m}^2 = \frac{\text{Mass in kg}}{(1,65 \text{ m})^2} \checkmark \text{ SF}$ $\text{Mass in kg} = 29,38 \text{ kg/m}^2 \times (1,65 \text{ m})^2 \checkmark \text{ M}$ $\text{Mass in kg} = 79,98705 \text{ kg}$ $\text{Mass in kg} = 80 \text{ kg} \checkmark \text{ R}$ <p><b>OR</b></p> $\text{BMI} = \frac{\text{Mass in kg}}{(\text{Height in m})^2}$ $\text{Mass in kg} = \text{BMI} \times (\text{Height in m})^2 \checkmark \text{ M}$ $\text{Mass in kg} = 29,38 \text{ kg/m}^2 \times (1,65 \text{ m})^2 \checkmark \text{ SF}$ $\text{Mass in kg} = 79,98705 \text{ kg}$ $\text{Mass in kg} = 80 \text{ kg} \checkmark \text{ R}$	<p>1 SF correct substitution in formula 1 M manipulating formula, making Mass the subject of the equation 1 R correct rounding</p> <p>1 SF correct substitution in formula 1 M manipulating formula, making Mass the subject of the equation 1 R correct rounding</p> <p>(3)</p>	M2
3.1.5 (a)	$\text{Average speed} = \frac{\text{Distance}}{\text{Time}}$ $= \frac{450 \text{ m}}{6 \text{ min}} \checkmark \text{ SF}$ $= 75 \text{ m / min} \checkmark \text{ A}$	<p>1 SF substitute in formula 1 A answer</p> <p>(2)</p>	MP1
3.1.5 (b)	<p>Time:</p> $= 16:40 + 00:06 + 00:12 \checkmark \text{ MA}$ $= 16:58 \checkmark \text{ A}$	<p>1 MA addition 1 A answer</p> <p><b>Answer only, full marks</b></p> <p>(2)</p>	MP2



Q	ANSWER	EXPLANATION	LEVEL
3.1.6	<p>Amount of water wasted:            = 12 ml x 60 min x 24 hrs ✓ MA            = 17 280 ml per day ✓ A</p> <p>Conversion = <math>\frac{17\,280\text{ ml}}{1\,000}</math> ✓ C            = 17,28 litres ✓ CA</p> <p><b>OR</b></p> <p>Amount of water wasted:            = 12 ml x 1 440 min ✓ MA            = 17 280 ml per day ✓ A</p> <p>Conversion = <math>\frac{17\,280\text{ ml}}{1\,000}</math> ✓ C            = 17,28 litres ✓ CA</p> <p><b>OR</b></p> <p>Amount of water wasted:            = 0,012 x 1440 ✓✓ M ✓ MA            = 17,28 litres CA</p>	<p>1 MA multiplication            1 A total millilitres wasted per day            1 C conversion            1 CA answer</p> <p>1 MA multiplication            1 A total millilitres wasted per day            1 C conversion            1 CA answer</p> <p>2 M for calculating 0,012            1 MA multiplication            1 CA answer</p> <p style="text-align: right;">(4)</p>	MP2
3.2			
3.2.1	<p>Intervals:            = 06:00 – 05:30            = 30 min ✓✓ RT</p>	<p>2 RT correct answer</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>Any column/times used in table to calculate 30 min = full marks</b></p> </div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><b>Answer only, full marks</b></p> </div> <p style="text-align: right;">(2)</p>	MP1

Q	ANSWER	EXPLANATION	LEVEL
3.2.2	8 stations ✓✓ A  <b>OR</b>  Eight stations	2 A answer  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Accept 7 stations or seven stations since Park station was not yet opened.</b> </div>  (2)	MP1
3.2.3	Digital format ✓✓ A	2 A answer  (2)	MP2
3.2.4	Travel time: = 06:11 – 05:38 ✓ MA = 33 min ✓ A  <b>OR</b>  = 0:22 + 0:11 ✓ MA = 33 min ✓ A  <b>OR</b>  = 22 min + 11 min ✓ MA = 33 min ✓ A	1 MA subtract time 1 A answer  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Any times used in table to calculate 33 min = full marks</b> </div>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <b>Answer only, full marks</b> </div>  <b>Unit NB</b>   (2)	MP1
			<b>[27]</b>



Q	ANSWER	EXPLANATION	LEVEL
4.2.3	<p>17,5 cm : 3,9 km ✓ A 17,5 cm : 390 000 cm ✓ C</p> $\frac{17,5}{17,5} : \frac{390\,000}{17,5} \checkmark M$ <p>1 : 22 285,71429 1 : 20 000 ✓ R</p> <p><b>OR</b></p> <p>✓ A <math>\frac{3,9\,km}{17,5\,cm} \times 100\,000 \checkmark C</math> ✓ A</p> <p>1 : 22 285,71429 1 : 20 000 ✓ R</p> <p><b>OR</b></p> <p>17,5 cm : 3,9 km ✓ A</p> $\frac{17,5\,cm}{17,5} : \frac{3,9\,km}{17,5} \checkmark M$ <p>1 cm : 0,223 km ✓ CA 1 cm : 0,20 km ✓ R</p>	<p><b>CA from Q.4.2.2</b> 1 A correct ratio 1 C conversion 1 M divide by measurement 1 R correct rounding</p> <p><b>CA from Q.4.2.2</b> 1 A correct numerator 1 A correct denominator 1 C conversion 1 R correct rounding</p> <p><b>CA from Q.4.2.2</b> 1 A correct ratio 1 M divide by measurement 1 CA answer 1 R correct rounding</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p><b>If last method is used, penalise learners 1 mark for not writing units in final answer</b></p> </div> <p style="text-align: right;">(4)</p>	M3
4.2.4	One unit on the map represents 20 000 units in reality / on the ground. ✓✓ A	2 A correct wording (2)	MP1
4.2.5	R560 ✓✓ A	2 A correct road (2)	MP1
			<b>[24]</b>

## QUESTION 5

Q	ANSWER	EXPLANATION	LEVEL
5.1			
5.1.1	Discrete data only consists of whole numbers and continuous data consists of decimal numbers as well. ✓✓ O	2 O correct explanation of both discrete and continuous data. (2)	DH1
5.1.2	February ✓✓ A	2 A correct month (2)	DH1
5.1.3	5 months ✓✓ A	2 A correct number of months (2)	DH1
5.1.4	Range = Max – Min = 8 – 0 ✓ MA = 8 ✓ A	1 MA correct values in correct order 1 A answer  <b>Penalise 1 mark if values are in incorrect order.</b> (2)	DH1
5.1.5	5, 5, 7, 8, 12, 12, 15, 16, 16, 18, 18, 18 ✓✓ A	2 A correct arrangement  <b>Penalise 1 mark for one missing value, no marks for more than one missing value.</b> (2)	DH1
5.1.6	Median = $\frac{12+15}{2}$ ✓ MCA = 13,5°C ✓ CA	<b>CA from Q. 5.1.5</b> 1 MCA correct values ÷ 2 1 CA answer (2)	DH2
5.1.7	Mean = $\frac{8+6+6+3+1+0+0+0+1+8+8+8}{12}$ ✓ MA = $\frac{49}{12}$ = 4,0833333... = 4 days ✓ A	1 MA addition or sum 1 MA divide by 12 1 A answer  <b>No penalty for rounding</b> (3)	DH2
5.1.8	Q1 = 8,5°C ✓ RT Q3 = 16,2°C ✓ RT  IQR = Q3 – Q1 = 16,2°C – 8,5°C ✓ M = 7,7°C ✓ CA	2 RT correct values from graph 1 M subtracting in correct order 1 CA answer (4)	DH2

Q	ANSWER	EXPLANATION	LEVEL																																							
5.1.9	<div style="text-align: center;"> <p><b>Average temperature for the year</b></p> <p>—●— Lowest Temperatures    —●— Highest Temperature</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Temperature Data (°C)</caption> <thead> <tr> <th>Month</th> <th>Lowest Temperature</th> <th>Highest Temperature</th> </tr> </thead> <tbody> <tr><td>January</td><td>18</td><td>29</td></tr> <tr><td>February</td><td>18</td><td>30</td></tr> <tr><td>March</td><td>16</td><td>28</td></tr> <tr><td>April</td><td>12</td><td>25</td></tr> <tr><td>May</td><td>8</td><td>23</td></tr> <tr><td>June</td><td>5</td><td>21</td></tr> <tr><td>July</td><td>5</td><td>21</td></tr> <tr><td>August</td><td>7</td><td>23</td></tr> <tr><td>September</td><td>12</td><td>28</td></tr> <tr><td>October</td><td>15</td><td>28</td></tr> <tr><td>November</td><td>16</td><td>28</td></tr> <tr><td>December</td><td>18</td><td>29</td></tr> </tbody> </table> </div>	Month	Lowest Temperature	Highest Temperature	January	18	29	February	18	30	March	16	28	April	12	25	May	8	23	June	5	21	July	5	21	August	7	23	September	12	28	October	15	28	November	16	28	December	18	29	<p style="text-align: right;">DH3</p> <p style="text-align: center;">                     1A Jan, Feb, Mar                      1A Apr, May, June                      1A July, Aug, Sept                      1A Oct, Nov, Dec                      1A Labelling                 </p> <p style="text-align: right;">(5)</p>	
Month	Lowest Temperature	Highest Temperature																																								
January	18	29																																								
February	18	30																																								
March	16	28																																								
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December	18	29																																								
5.2																																										
5.2.1	99/00 ✓✓ RT	2 RT correct year	(2) DH1																																							
5.2.2	31 320 ✓✓ A	2 A answer	(2) DH1																																							

<b>Q</b>	<b>ANSWER</b>	<b>EXPLANATION</b>	<b>LEVEL</b>
5.2.3	Mean = $\frac{3+4+3+3+0+5,8}{6}$ ✓ MA = $\frac{18,8}{6}$ ✓ MA = 3,13 % ✓ CA	1 MA addition or total 1 MA correct denominator 1 A answer  (3)	DH2
5.2.4	15 years ✓✓ A	2 A answer (2)	DH1
5.2.5	✓ RT ✓ RT Difference = $-11 - 5,8$ = $-16,8$ ✓ CA  <b>OR</b>  Difference = $5,8 - (-11)$ = $16,8$	2 RT correct values 1 CA answer  (3)	DH1
			<b>[36]</b>

TOTAL: 150