# NATIONAL
# SENIOR CERTIFICATE

## GRADE 12

## SEPTEMBER 2017

# MATHEMATICAL LITERACY P1
# MARKING GUIDE

**MARKS:     150**

| Symbol | Explanation |
|---|---|
| M | Method |
| A | Accuracy |
| CA | Consistent accuracy |
| RT/RG/RM | Reading from a table/Reading from a graph/Read from map |
| SF | Substitution in a formula |
| P | Penalty, e.g. for no units, incorrect rounding off etc. |
| S | Simplification |
| R | Rounding/Reason |
| NPR | No penalty for rounding |

This marking guide consists of 9 pages.

| QUESTION 1 [30 MARKS] | | | |
|---|---|---|---|
| | | | |
| **QUES** | **Solution** | **Explanation/m** | **T/L** |
| 1.1.1 | $\dfrac{750}{3\,200} \times 100\%$ ✔<br><br>$= 23{,}44\%$ ✔ | 1M Multiply by 100<br><br>1CA (NPR) (2) | F<br><br>LI |
| | | | |
| 1.1.2 | Balance $= 3\,200 - 750$ ✔<br>$= 2\,450$ ✔ | 1M subtraction<br>1 CA (2) | F<br>L1 |
| | | | |
| 1.1.3 | Total amount paid $= 750 + 5 \times 300$ ✔<br><br>$= $ R2 250 ✔ | 1M Adding and Multiplying<br>1 CA (2) | F<br>L1 |
| | | | |
| 1.2.1 | Rate in cents $= 0{,}8865 \times 100$ ✔<br>$= 88{,}65$ ✔ | 1M Multiplying<br>1A (2) | F<br>L1 |
| | | | |
| 1.2.2 | Amount charged $= 50 \times 88{,}65$ ✔<br>$= 4\,432{,}5$ cent ✔<br><br>**OR**    $50 \times 0{,}8865$ ✔<br>$= $ R44,33 ✔ | 1M Multiplying<br>1A<br><br>(NPR)<br>(2) | <br><br><br>F<br>L1 |
| | | | |
| 1.2.3 | Value Added Tax ✔✔ | 2 R<br>(2) | F<br>L1 |
| | | | |
| 1.3.1 | Time to clock off $= 7{:}30 + 7$ hr. $= 14{:}30$ ✔<br>Then    $15{:}00 + (15 \text{ min} + 45 \text{ min}) = 15{:}30$ ✔ | 1M adding 7hr<br>1A (2) | M<br>L1 |
| | | | |
| 1.3.2 | Income $= 26 \times 7 \times 20$ ✔<br>$= $ R3 640 ✔ | 1M multiplication<br>1CA (2) | F<br>L1 |
| | | | |
| 1.4.1 | Distance $= 1\,141$ km ✔✔ | 2RT (2) | M<br>L1 |
| | | | |
| 1.4.2 | East London ✔ and Polokwane ✔ | 2RT (2) | M<br>L1 |
| | | | |
| 1.4.3 | Durban ✔ and Cape Town ✔ | 2RT (2) | M<br>L1 |
| | | | |
| 1.5.1 | Parents in the survey $= 24 + 32 + 16 + 13 + 5$ ✔<br>$= 90$ ✔ | 1M Adding<br>1A (2) | D<br>L1 |
| | | | |
| 1.5.2 | Less than 20% $= 24 + 32$ ✔<br>$= 56$ ✔ | 1M Adding<br>1A (2) | D<br>L1 |

      

| 1.5.3 | Modal range = 10–19 ✓✓ | 2RG | (2) | D L1 |
|---|---|---|---|---|
| | | | | |
| 1.5.4 | Bar graph ✓✓ | 2RG | (2) | D L1 |
| | | | | **[30]** |

| | | | |
|---|---|---|---|
| **QUESTION 2 [42 MARKS]** | | | |
| | | | |
| **QUES.** | **Solution** | **Explanation/m** | **T/L** |
| | | | |
| 2.1.1 | Child support ✓✓ | 2RT (2) | L1 |
| | | | |
| 2.1.2 | R1 525 + 2 x R350 ✓= R1 525 + R700 ✓<br>= R2 225 ✓ | 1MA amount<br>1 S<br>1CA amount (3) | L1 |
| | | | |
| 2.1.3 | R1 435 x 6,27% = 89,97 ✓<br>R1 435 + 89,97 = R1 524,97 ✓<br>R1 525 ✓<br><br>**OR**<br><br>1435 x 1,0627 ✓= R1 524,97 ✓<br>= R1 525 ✓ | 1MA multiply by 6,27%<br>1CA addition<br>1CA Rounding<br><br><br>1MA multiply by 1,0627<br>1CA<br>1CA Rounding (3) | L1 |
| | | | |
| 2.2.1 | 4 x R1 155,26 ✓<br>= R4 621,04 ✓<br><br>**OR**<br>R5 620 – (115,80 + 192,98 + 690,18)<br>R5 620 – R998,96 ✓<br>= R4 621,04 ✓<br><br>**OR**<br>R4 929,82 – R115,80 – R192,98<br>= R4 621,04 | 1M<br>1CA<br><br><br><br>1S<br>1CA<br><br><br>1M<br>1A (2) | L1 |
| | | | |
| 2.2.2 | R0,00 ✓✓ | 2RT (2) | |

| 2.2.3 | R4 621,04 x 5,6%<br>R258,78 ✓<br>R4 621,04 – R258,78<br>R4 362,26 ✓<br>Price with VAT = 1,14 x 4362,26 ✓<br>                = R4 972,98 ✓<br>**OR**<br>100% – 5,6%<br>= 94,4% ✓<br>R4 621,04 x 94,4%<br>R4 362,26 ✓<br>Price with VAT = 1,14 x 4362,26 ✓<br>                = R4 972,98 ✓ | 1MA Value of 5,6%<br>1S Difference<br>1M Subtraction<br>1CA<br>1M Multiply with 1,14<br>Price with VAT<br><br>1M Difference in %<br>1 CA Value of 94,4%<br>1M Multiply with 1.14<br>1CA Price with VAT<br><br>                (4) | L3 |
|---|---|---|---|
|  |  |  |  |
| 2.3.1 | R8,3 billion ✓✓<br>**OR**<br>8 300 000 000 ✓✓ | 2RT<br>**Penalise with 1 mark if answer is written without billion**<br>                (2) | L1 |
|  |  |  |  |
| 2.3.2 | R19,84 + R2,71 + R0,45 + R1,8 + R2,71 + R17,59 ✓<br>R45,1 billion ✓<br>**OR**<br>R45 100 000 000 ✓✓ | 1M addition<br>1CA<br><br>2A<br>**Penalise with 1 mark if answer is written without billion**        (2) | L1 |
|  |  |  |  |
| 2.3.3 | 1 Euro = R15,3728<br>      ? = R1,8 billion<br>? = $\frac{1.8}{15,3728}$ ✓ = € 0,1170899251 billion ✓<br>  = 0,1170899251 × 1 000 000 000<br>  = €117 089 925,1 | 1M division<br>1 CA<br><br><br><br>                (2) | L2 |
|  |  |  |  |
| 2.3.4 | 96,0 – 36,8 ✓✓<br>= 59,2 billion ✓ | 1M correct values<br>1M subtraction<br>1A<br>**Penalise with 1 mark if answer is written without billion**<br>(3) | L1 |
|  |  |  |  |
| 2.3.5 | $\frac{17,59}{45,1}$ ✓x 100% ✓<br>      = 39% ✓ | 1M Division<br>1M Multiply by 100<br>1CA                (3) | L2 |
|  |  |  |  |
| 2.3.6 | 1,8 : 36,8 ✓✓<br>  1 : 20,44 ✓ | 1 Ratio<br>1 Correct values<br>1A                (3) | L2 |

| 2.4.1 | R10,00 x 25 ✓<br>= R250,00 ✓ | 1M identifying R10<br>1CA        (2) | L1 |
|---|---|---|---|
| | | | |
| 2.4.2 | 260 x R1,50 ✓<br>= R390,00 ✓ | 1M<br>1A        (2) | L1 |
| | | | |
| 2.4.3 | R11,00 ✓✓ | 2RT        (2) | L1 |
| | | | |
| 2.5.1 | Inflation is the increase in prices of goods and services over time. ✓✓ | 2R<br>(2) | F<br>L1 |
| | | | |
| 2.5.2 | Inflation rate $= \dfrac{New\ price - Old\ price}{Old\ price} \times 100\%$<br><br>$= \dfrac{55,95 - 52,95}{52,95} \times 100\%$ ✓<br>$= 5,665$ ✓<br>$= 6\%$ ✓ | 1M Substitution<br><br>1M simplification<br><br>1A Rounded in %<br>(3) | F<br>L2 |
| | | | **[42]** |

| | **QUESTION 3 [23 MARKS]** | | |
|---|---|---|---|
| | | | |
| **QUES.** | **Solution** | **Explanation/m** | **T/L** |
| 3.1.1 | $28 + 2 \times 10{,}6 + 41{,}2 + 28$ ✓✓<br><br>$= 118{,}4$ g ✓ | 1M Addition<br>1M 10,6 x 2<br>1CA (One value missing)<br>(3) | L2 |
| | | | |
| 3.1.2 | Number of spoons $= \dfrac{27{,}5}{4{,}18}$ ✓<br><br>$= 6{,}6$ teaspoons ✓<br>$= 7$ teaspoons ✓ | 1M Division<br>1 CA when one of the values is incorrect<br>1R<br>(3) | L1 |
| | | | |
| 3.1.3 | $\dfrac{50 \times 500}{250} = \dfrac{25\,000}{250}$ ✓<br>$= 100$ cups ✓ | 1M<br><br>1A (2) | L1 |
| | | | |
| 3.2.1 | Volume = length x width x height<br>$= 28$ cm x 15 cm x 8 cm ✓<br>$= 3\,360$ cm$^3$✓ | <br>1SF<br>1A (2) | L2 |
| | | | |
| 3.2.2 | Volume of chocolate $= \dfrac{3\,360}{80}$ ✓<br>$= 42$ cm$^3$✓<br><br>Volume = area of base x thickness<br>$42$ cm$^3 = 35$ cm$^2$ x thickness<br>✓<br>Thickness of chocolate<br>$= \dfrac{42}{35}$<br>$= 1{,}2$ cm ✓ | CA from 3.2.1<br>1M<br>1A Volume of one chocolate<br><br>1S Substitution<br><br><br><br>1A Thickness of chocolate<br>(4) | L3 |
| | | | |
| 3.3.1 | Diameter<br>$130$ cm $+ 25$ cm $\times 2 + 1{,}8$ cm x 2 ✓✓<br>$= 183{,}6$ cm ✓ | <br>1M x 2 and addition<br>1CA Diameter (2) | L2 |
| | | | |
| 3.3.2 | Area = 2,3 m x 2,3 m ✓<br>$= 5{,}29$ m$^2$ ✓ | 1SF<br>1CA (2) | L2 |
| | | | |
| 3.3.3 | Area $= 3{,}142$ x $(0{,}918$ m$)^2$ ✓✓<br>$= 2{,}647$ m$^2$<br>$= 2{,}65$ m$^2$✓ | 1M SF<br>1CA radius from 3.3.1 value of diameter<br>1CA (3) | L2 |
| | | | |
| 3.3.4 | Wasted material = Area of material – Area of tablecloth to cut<br>$= 5{,}29$ m$^2 - 2{,}65$ m$^2$✓<br>$= 2{,}64$ m$^2$✓ | CA from 3.3.2 and 3.3.3<br>1M subtraction<br>1A<br>(2) | L2 |
| | | | **[23]** |

**QUESTION 4 [20 MARKS]**

| QUES | Solution | | | Explanation/m | T/L |
|---|---|---|---|---|---|
| 4.1.1 | Two ✓✓ | | | 2RM                    (2) | L1 |
| | | | | | |
| 4.1.2 | Sample point E ✓✓ | | | 2 RM                   (2) | L1 |
| | | | | | |
| 4.1.3 | Taaibuschspruit ✓<br>Leeuspruit ✓ | | | 1RM 1st side stream<br>1RM 2nd side stream<br>                              (2) | L1 |
| | | | | | |
| 4.1.4 | Scaled length $= \frac{3x\ 100\ 000}{25\ 000}$ ✓<br>            $= 25\ 000$ ✓<br>            $= 12$ cm ✓ **OR** 0,12 m | | | 1M x 100 000<br>1M Division 25 000<br>1A Distance in cm<br>                              (3) | L2 |
| | | | | | |
| 4.2.1 | (a) | 16 ✓✓ | | 2RD                    (2) | L2 |
| | | | | | |
| | (b) | Fixed side ✓ and<br>Drop side ✓ | | 1RD 1ste wood part<br>1RD 2nd wood part  (2) | L2 |
| | | | | | |
| | (c ) | B ✓✓ | | 2RD                    (2) | L2 |
| | | | | | |
| 4.2.2 | 16 ✓✓ | | | 2RM                    (2) | L1 |
| | | | | | |
| 4.2.3 | $\frac{4}{12}$ ✓ ✓<br>$\frac{1}{3}$ ✓ | | | 1M value of numerator<br>1M denominator<br>1M simplified answer<br>                              (3) | L2 |
| | | | | | **[20]** |

| QUESTION 5 [35 MARKS] | | | |
|---|---|---|---|
| | | | |
| **QUES.** | **Solution** | **Explanation/m** | **T/L** |
| 5.1.1 | Northern Cape ✓<br>Western Cape ✓ | 2RT<br>(2) | L1 |
| | | | |
| 5.1.2 | A<br>=11 705 + 5 105+4 568+10 070 + 13 022 +<br>5 091 + 1 963 + 3 543+3 589 ✓<br>= 58 656 ✓ | 1A adding<br><br>1CA if one value is<br>missing (2) | L1 |
| | | | |
| 5.1.3 | 613; 1 404; 2 122; 2 149; 2 290; 2 600;<br>2625; 3 492; 4 765 ✓✓ | 2M Ascending order<br>(2) | L1 |
| | | | |
| 5.1.4 | 2 290 ✓✓ | 2CA from 5.1.3 (2) | L2 |
| | | | |
| 5.1.5 | 2 625 – 1 404 ✓✓<br>= 1 221✓ | 1M correct values<br>1M subtraction<br>1CA (3) | L1 |
| | | | |
| 5.1.6 | $\dfrac{58\ 656}{9}$ ✓<br>= 6 517,3 ✓<br>= 6 517 ✓ | CA from 5.1.2<br>1M dividing by 9<br>1S<br>1CA (using from<br>value from 5.1.2) (3) | L2 |
| | | | |
| 5.1.7 | Limpopo ✓✓ | 2RT (2) | L1 |
| | | | |
| 5.2. | A – Minimum value ✓<br>B – Lower Quartile ✓<br>C – Upper Quartile ✓<br>D – Maximum value ✓ | 1M Minimum<br>1M Lower Quartile<br>1M Upper Quartile<br>1M Maximum (4) | L2 |
| | | | |
| 5.3.1 | Sample points 2 , 3 and 9 ✓✓ | 1M 1ˢᵗ sample point<br>1M 2ⁿᵈ and 3ʳᵈ sample<br>points (2) | L1 |
| | | | |
| 5.3.2 | Significant risk of gastrointestinal disorders ✓✓ | 2RT (2) | L1 |

        

| 5.3.3 | | |
|---|---|---|
| | | |

Blue Green Algae counts per 100 mℓ at different sample points

Y-axis: Blue Green Algae counts per 100 mℓ (0 to 1200)

X-axis: Sample points (1 to 10)

Legend: Blue Green Algae
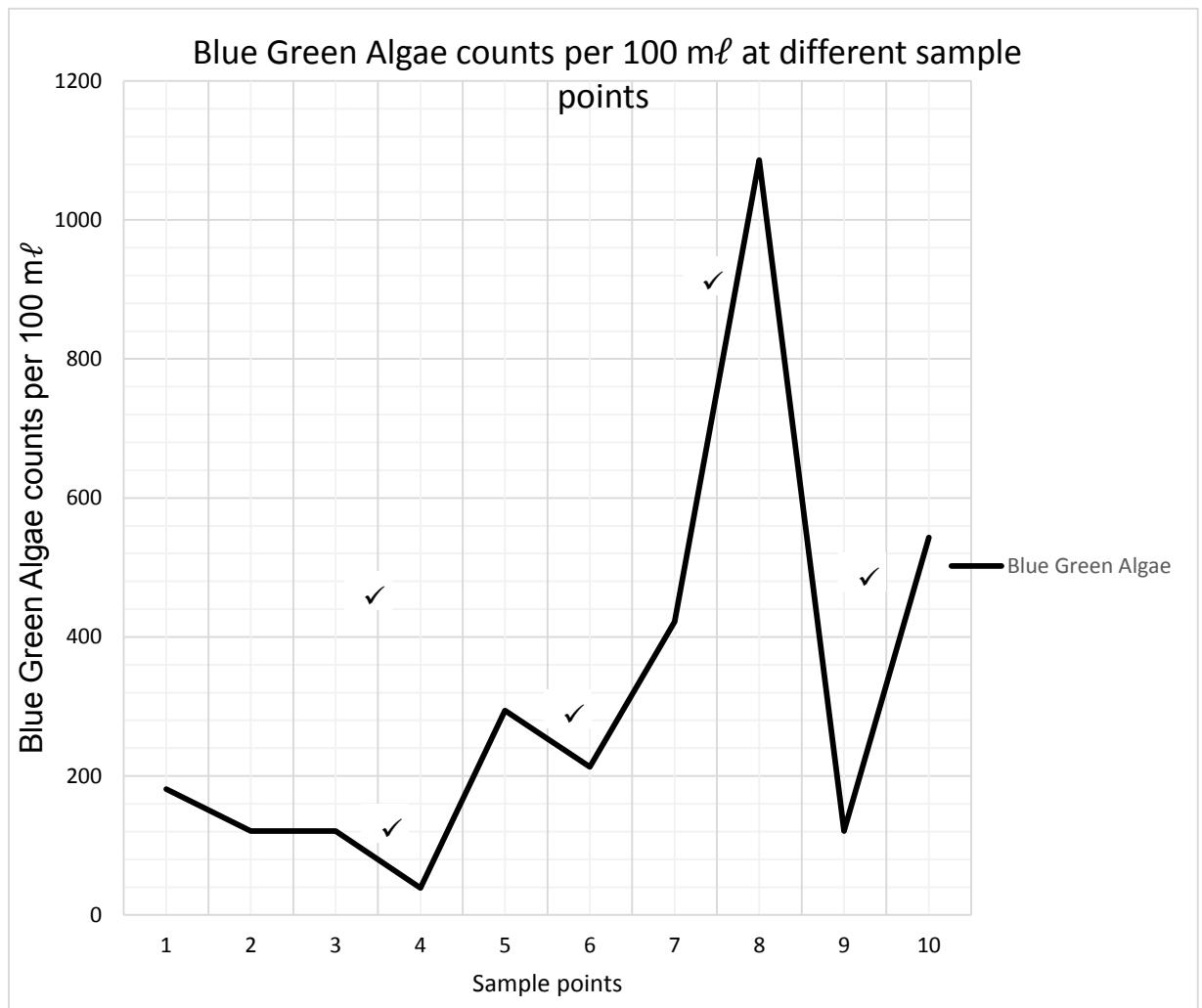
| 1 Mark per two points correctly plotted (5 x 1)<br>1 Mark for joining the points | | (6) | |
|---|---|---|---|
| | | | |
| 5.4.1 | A ---- (H;H) ✓<br>B----- (T) ✓<br>C------(T;H) ✓ | 3A 1 mark for each outcome | P<br>L2 |
| | | | |
| 5.4.2 | P(HH) = $\frac{1}{4}$ ✓✓ | 1M numerator<br>1M denominator   (2) | P<br>L2 |
| | | | |
| | | | **[35]** |
| | | | |
| | | **TOTAL:** | **150** |