



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2018

**MATHEMATICAL LITERACY P1
MARKING GUIDELINE**

MARKS: 150

| Symbol | Explanation |
|---------------|--|
| M | Method |
| MA | Method with accuracy |
| CA | Consistent accuracy |
| A | Accuracy |
| C | Conversion |
| S | Simplification |
| RT/RG/RM | Reading from a table/Reading from a graph/Reading from a map |
| F | Choosing the correct formula |
| SF | Substitution in a formula |
| J | Justification |
| P | Penalty, e.g. for no units, incorrect rounding off etc. |
| R | Rounding Off/Reason |
| AO | Answer only |
| NPR | No penalty for rounding |

This marking guideline consists of 10 pages.

| QUESTION 1 [30 MARKS] INTEGRATED QUESTION | | | | |
|--|--|---|---|-------------|
| Question | | Solution | Explanation/Marks AO: FULL MARKS | Lev. |
| 1.1 | 1.1.1 | Inflation is the increase in the price of goods and services over time. ✓✓A OR The decrease in the purchasing value of the money over time. ✓✓A | 2A Explanation (2) | F L1 |
| | 1.1.2 | Difference = R125 – R120 = R5 ✓M = 5 × 100 = 500 cents ✓A | 1M Difference 1CA In cents (2) | F L1 |
| | 1.1.3 | Price = $\frac{112,5}{100} \times 125$ ✓M = R140,60 ✓CA OR Profit = $\frac{12,5}{100} \times 125 = R15,625$ ✓M OR Price = 125 × 1,12 Price = 125 + 15,625 = R140,625 = 140,625 = R140,60 ✓CA = R140,60 | 1M Multiply 112,5 by 125 and dividing by 100 1CA Price OR 1M For profit 1CA Price NPR (Concept of money) (2) | F L1 |
| 1.2 | 1.2.1 | Cost of a dozen = $\frac{90}{60} \times 12$ ✓MA = R18,00 ✓CA OR Dozens = $\frac{60}{12}$ = 5 ✓ Cost of a dozen = $\frac{90}{5}$ = R18 ✓ | 1MA Divide by 60 and multiply by 12 1CA Cost 1MA Number of dozens 1CA Cost (2) | F L1 |
| | 1.2.2 | % Profit = $\frac{((60 + 75) - 90)}{90} \times 100$ ✓M = $\frac{45}{90} \times 100\%$ ✓M = 50% ✓CA | 1M Subtraction for profit 1M Fraction 45/90 multiply by 100 1CA Percentage (3) | FL1 |
| 1.3 | Time = 24:00 – 16:25 = 7h 35 min ✓M From midnight to 3:30 am = 3h30 min ✓M ∴ Total time = 7 hours 35 min + 3h30min = 11h 05 min ✓CA | | 1M For 7h 35min 1M For 3h 30min 1CA Time (3) | M L1 |
| 1.4 | Plastic cups = $\frac{2 \times 1000}{275}$ ✓M = 7,2727 = 7 ✓A | | 1M Correct numerator and denominator 1A Rounding down (2) | ML1 |

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|-----|-------|---|---|----------|
| 1.5 | 1.5.1 | Length = $\frac{2cm \times 75 m}{100 cm} \checkmark \checkmark 2M$ $= 1,5 m \checkmark$ | 1M for Numerator 1M for Denominator 1CA With correct unit (3) | ML1 |
| | | | | |
| | 1.5.2 | Scale = 100 : 7 500 $\checkmark \checkmark 2M$ $= 1 : 75 \checkmark 1CA$ | 1M Ratio form 1C Conversion 1CA Answer (3) | MP L1 |
| | | | | |
| 1.6 | 1.6.1 | 72,67% = Nelson Mandela District $\checkmark \checkmark A$ | 2A District (2) | DL1 |
| | | | | |
| | 1.6.2 | Districts are: Chris Hani East, OR Tambo Coastal, $\checkmark A$ Amathole East and Amathole West $\checkmark A$ | 1A First 2 districts 1A Second 2 districts (2) | DL 1 |
| | | | | |
| | 1.6.3 | Nelson Mandela, Sarah Baartman OR Tambo Inland, Chris Hani West, Alfred Nzo West, Joe Gqabi, Buffalo City $\checkmark M$ \therefore Middle district = CHRIS HANI WEST $\checkmark CA$ | 1M Identifying 7 best performing districts in order 1CA for middle district (2) | DL1 |
| | | | | |
| | 1.6.4 | Candidates failed = $\frac{26,1}{100} \times 313\ 030 \checkmark M$ $= 81\ 701 \checkmark CA$ OR Passed = $\frac{73,9}{100} \times 313\ 030$ $= 231\ 329 \checkmark M$ Number failed = $313\ 030 - 231\ 329$ $= 81\ 701 \checkmark CA$ | 1M Correct values 1CA Candidates 1MA Candidates passed 1CA Candidates failed Accept 81 700 (2) | DL1 |
| | | | [30] | |

| QUESTION 2 [46 MARKS] FINANCE | | | | |
|-------------------------------|-------|---|---|------|
| Question | | Solution | Explanation/Marks AO: FULL MARKS | Lev. |
| 2.1 | 2.1.1 | Value of A = R3 250 + R4 500 + R1 200 ✓ M = R8 950 ✓ A OR Value of A = R7 950 + R1 000 ✓ M = R8 950 ✓ A | 1M Addition 1A Value of A 1M Addition 1A Value of A (2) | L2 |
| | 2.1.2 | Value of B = R1 440 – R1 500 ✓ M = -R60 ✓ A Value of B = R1 440 – R1 500 ✓ M = (R60) ✓ A | 1M Subtracting correct values 1A Negative answer 1M Subtracting correct values 1A Answer in brackets (2) | |
| | 2.1.3 | Value of C = R2 600 – R200 ✓ M = R2 400 ✓ CA OR Value of C = R5 780 – (R880 + R1 000 + R1 500) ✓ M = R2 400 ✓ CA | 1M Subtraction 1CA Value of C 1M Subtraction 1CA Value of C (2) | L1 |
| | 2.1.4 | Delivery ✓✓ A | 2A Correct answer (2) | L1 |
| 2.2 | 2.2.1 | Annual gross salary = R65 000 × 12 ✓ M = R780 000 ✓ CA | 1M Multiply by 12 1CA Annual salary (2) | L1 |
| | 2.2.2 | Mrs John's annual pension fund contribution: $\frac{7,5}{100} \times 65\,000 \times 12$ ✓ M = R58 500 ✓ CA | 1M Multiply by 12 CA Pension contr. (2) | L1 |
| | 2.2.3 | Medical Aid contribution = R1 050 × 12 ✓ M = R12 600 ✓ A | 1M Multiply by 12 1A Contribution (2) | L1 |
| | 2.2.4 | Mrs John's performance bonus = $\frac{75}{100} \times 65\,000$ ✓ M = R48 750 ✓ A | 1M Correct values 1M Multiply by 75% (2) | L1 |

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| | 2.2.5 | Annual taxable income = R780 000 + R48 750 – (58 500 + R12 600) ✓✓M = R828 750 – R71 100 ✓M = R757 650 ✓CA | CA from 2.2.1, 2.2.2 and 2.2.3 1M Total income 1M Total contributions 1M Subtraction 1CA Taxable income (4) | L2 |
| 2.3 | 2.3.1 | R701 301 and above ✓✓RT | 2RT Correct group (2) | L1 |
| | 2.3.2 | Rebate Mrs John will receive = R13 500 + R7 407 ✓M = R20 907 ✓A | 1M Adding correct rebates 1A Total rebate (2) | L1 |
| | 2.3.3 | Actual tax = Income tax calculated on taxable income Rebate = 206 964 + 41 % of the amount above 701 300 – R20 907 = 206 964 + 0,41 × (757 650 – 701 300) – 20 907 ✓SF = 206 964 + 0,41 × 56 350 – 20 907 ✓S = 206 964 + 23103,50 – 20 907 ✓S = R209 160,50 ✓CA | CA from 2.2.5, 2.3.1 and 2.3.2 1SF Substitution 1S Simplification 1S Simplification 1CA Nearest rand (4) | L3 |
| | 2.3.4 | Net annual salary = Annual taxable income – Actual annual tax = R757 650 – R209 160,50 ✓SF✓M = R548 489,50 ✓CA | CA from 2.2.5 and 2.3.3 1SF Substitution 1M Subtraction 1CA Net salary (3) | L1 |
| 2.4 | 2.4.1 | $\text{Interest 1}^{\text{st}} \text{ year} = \frac{15,5}{100} \times 400\,000$ $= R62\,000 \checkmark A$ $\text{2}^{\text{nd}} \text{ year amount} = R400\,000 + R62\,000$ $= R462\,000 S \checkmark$ $\text{Interest 2}^{\text{nd}} \text{ year} = \frac{15,5}{100} \times R462\,000$ $= R71\,610 \checkmark S$ $\text{Total interest} = R62\,000 + R71\,610$ $= R133\,610 \checkmark A$ | 1A Interest 1S New amount 2 nd year 1S Interest in 2 nd year 1A Total interest (4) | L2 |

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|--|-------|--|---|----|
| | 2.4.2 | Phone D: $\text{Cost excluding VAT} = \frac{100}{115} \times 1\,750$ $= \text{R}1\,521,74 \checkmark \text{M}$ $\text{VAT} = \text{R}1\,750 - \text{R}1\,521,74 \checkmark \text{M}$ $= \text{R}228,26 \checkmark \text{A}$ <p style="text-align: center;">OR</p> $\text{VAT} = \frac{15}{115} \checkmark \text{M} \times 1\,750 \checkmark \text{M}$ $= \text{R}228,26 \checkmark \text{A}$ | 1M Cost without VAT 1M Subtraction 1A VAT value 1M Fraction 1M Multiplication 1A VAT value (3) | L2 |
| | 2.4.3 | Phone D : Phone E $3 : 2$ $60 : E \checkmark \text{M}$ $E = \frac{60 \times 2}{3}$ $= 40 \checkmark \text{CA}$ | 1M Ratio form 1CA Number of phones (2) | |
| | 2.4.4 | Total cost = $60 \times 1\,750 + 40 \times 2\,000$ $= 105\,000 \checkmark \text{M} + 80\,000 \checkmark \text{M}$ $= \text{R}185\,000 \checkmark \text{CA}$ | CA from 2.4.3 1M Cost for phones D 1M Cost for phones E 1CA Total cost (3) | L1 |
| | 2.4.5 | $1 : 0,52709$ $185\,000 : \text{Total cost in CYN}$ Total cost = $185\,000 \times 0,52709 \checkmark \text{M}$ $= \text{CYN } 97\,511,65 \checkmark \text{A} \checkmark \text{A}$ | 1M Conversion 1A Total cost 1A Answer in Yuan (3) | L2 |
| | | | [46] | |

| QUESTION 3 [25 MARKS] MEASUREMENT | | | |
|--|---|---|--------------|
| Ques. | Solution | Explanation/Marks AO: FULL MARKS | Level |
| 3.1.1 | Length = $4\,880\text{ mm} \div 1\,000 \checkmark \text{C}$ = $4,88\text{ m} \checkmark \text{A}$ | 1C Divide by 1000 1A Metres (2) | L1 |
| 3.1.2 | Distance A = $3(150\text{ mm}) \checkmark \text{M}$ = $450\text{ mm} \checkmark \text{A}$ | 1M Multiplication by 3 1A Distance (2) | L1 |
| 3.1.3 | Height of the wall = $2,1\text{ m} + 450\text{ mm} \div 1\,000 \checkmark \text{C}$ = $2,1\text{ m} + 0,45\text{ m} \checkmark \text{S}$ = $2,55\text{ m} \checkmark \text{CA}$ | CA from 3.1.2 1C Conversion 1S Simplification 1CA Height (3) | L1 |
| 3.1.4 | Area = Length \times Width = $\frac{4,88}{2} \checkmark \times 2,1\text{ m} \checkmark \text{M}$ = $5,124\text{ m}^2 \checkmark \text{CA} \checkmark \text{Unit}$ | CA from 3.1.1 1M Dividing by 2 1M Multiplication 1CA Area 1A Unit (4) | L2 |
| 3.1.5 | Area covered by bricks = Area of garage – Area of double door = $(2,55\text{ m} \times 5,18\text{ m}) \checkmark - (4,88\text{ m} \times 2,1\text{ m}) \checkmark \text{M} \checkmark \text{M}$ = $13,209\text{ m}^2 - 10,248\text{ m}^2 \checkmark \text{S}$ = $2,961\text{ m}^2 \checkmark \text{CA}$ | CA from 3.1.1 and 3.1.3 1M Area of garage 1M Area of double door 1M Subtraction 1S Simplification 1CA Area covered by bricks (5) | L2 |
| 3.2.1 | Height of the bricks and cement = $(12 \times 2) + 76\text{ mm} \checkmark \text{M}$ = $100\text{ mm} \checkmark \text{CA}$ | 1M Multiplication by 2 and addition 1CA Height (2) | L1 |
| 3.2.2 | Number of rows of bricks = $\frac{2\,500}{100} \checkmark \text{M} \checkmark \text{M}$ = $25 \checkmark \text{CA}$ | CA from 3.2.1 1M Conversion 1M Division 1CA Number of rows of bricks (3) | L1 |
| 3.2.3 | Volume = $23\text{ cm} \times 11\text{ cm} \times 7,6\text{ cm} \checkmark \text{SF} \checkmark \text{C}$ = $1\,922,8 \checkmark \text{ A cm}^3 \checkmark \text{A}$ | 1SF Substitution 1C Conversion 1A Volume 1A Units (4) | L2 |
| | | [25] | |

| QUESTION 4 [31 MARKS] DATA HANDLING | | | |
|-------------------------------------|---|--|-------|
| Ques. | Solution | Explanation/Marks AO: FULL MARKS | Level |
| 4.1. | $\text{Range} = 3,316 \text{ kg} - 0,182 \text{ kg} \checkmark \text{RT} \checkmark \text{M}$ $= 3,134 \text{ kg} \checkmark \text{CA}$ | 1RT Correct values 1M Subtraction 1CA Range (3) | L2 |
| 4.2 | $1,668 \text{ kg} \checkmark \checkmark \text{A}$ | 2A Median (2) | L2 |
| 4.3 | $\text{Average} =$ $1,26 \times 2 + 1,371 \times 9 + 1,668 \times 8 + 1,746 \times 4 + 1,849 \times 8 + 2,163$ $+ 2,333 + 3,128 \times 2 \checkmark \text{M}$ $= \frac{60,731}{35} \checkmark \text{M}$ $= 1,735$ $= 2 \text{ kg} \checkmark \text{R}$ | 1M Adding 1M Concept of mean 1R Average to nearest kg (3) | L2 |
| 4.4 | $22 \checkmark \checkmark \text{A}$ | 2A Explanation (2) | L1 |
| 4.5 | $\frac{8}{35}$ $\text{Probability} = \frac{8}{35} \checkmark \text{M} \times 100\% \checkmark \text{M}$ $= 22,9\% \checkmark \text{CA}$ | 1M Fraction value 1M Multiply by 100 1CA Percentage (3) | L1 |

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|------|---|--|----|
| 4.6 | <p style="text-align: center;">Hours spent and fish caught in August</p> <p>4M For the first 4 bars plotted correctly 1M For the next 2 bars plotted correctly 1M For the last 2 bars plotted correctly</p> <p style="text-align: right;">(6)</p> | | L2 |
| 4.7 | <p>0,182; 0,182; 0,182; 0,309; 0,729; 0,729; 0,729; 0,856; 0,856; 0,856; 0,856 0,936; 2,448; 2,448; 2,449; 3,038; 3,316; 3,316; 3,316; 3,316; 3,316; 3,316</p> <p>Q2</p> <p style="text-align: center;">↓ Q3</p> <p>$Q2 = \text{Median} = \frac{0,856 + 0,936}{2} = 0,896$ ✓✓ MM Q3 = 3,316 ✓ CA</p> | <p>1M Correct values 1M Value or position of median 1CA Q3</p> <p style="text-align: right;">(3)</p> | L1 |
| 4.8 | 3,316 kg ✓✓ | <p>2A RT Modal value</p> <p style="text-align: right;">(2)</p> | L1 |
| 4.9 | <p style="text-align: center;">$\frac{8}{57}$</p> <p>% of total fishes = $\frac{8}{57} \times 100$ ✓M = 14,04 % ✓ CA</p> | <p>1M Fraction 1M Multiply by 100 1CA Percentage</p> <p style="text-align: right;">(3)</p> | L1 |
| 4.10 | 3 rd hour ✓✓ | <p>2RT Correct hour</p> <p style="text-align: right;">(2)</p> | L1 |
| 4.11 | 1,1,1,1,2,3,3,4,6 ✓✓ | <p>2M Arrangement</p> <p style="text-align: right;">(2)</p> | L1 |
| | | [31] | |

| QUESTION 5 [18 MARKS] MAPS, PLANS and OTHER REPRESENTATIONS | | | |
|--|---|---|--------------|
| Ques | Solution | Explanation/Marks AO: FULL MARKS | Level |
| 5.1 | There is no seat for Lundi here ✓✓A | 2A No seat (2) | MP L1 |
| 5.2 | South ✓✓A | 2A Direction (2) | L1 |
| 5.3 | A8 ✓ RP A11 ✓ RP A15 ✓ RP | 1RP First seat 1RP Second seat 1RP Third seat (3) | L1 |
| 5.4 | 35 ✓✓RP | 2RP Available seats (2) | L1 |
| 5.5 | B14 ✓✓ RP | 2RP Asi's seat no. (2) | L1 |
| 5.6 | Row J ✓✓ RP | 2RP Furthest row (2) | L1 |
| 5.7 | Side BB ✓✓ RP | 2RP Correct side (2) | L1 |
| 5.8 | $P_{(\text{seat from side AA})} = \frac{20}{194} \checkmark A \checkmark A$ $= 0,103 \checkmark CA$ | 1A Numerator 1A Denominator 1CA Answer (3) | P L2 |
| | | [18] | |
| | TOTAL: | 150 | |