basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

NOVEMBER 2016

FINAL MARKING GUIDELINE

MARKS: 150

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

This memorandum consists of 19 pages.

QUESTION 1 [36 MARKS]			
Ques	**Solution**	**Explanation**	**T&L**
1.1.1	$P_{(\text{even number date})} = \frac{11}{22}$ ✓✓A ✓A $= \frac{1}{2}$ or 0,5 or 50%	2A numerator 1A denominator AO (3)	P L2
1.1.2	• Quality of bank services / security / perks. ✓✓O **OR** • Proximity or accessibility of the bank. ✓✓O **OR** • Marketing/advertising appeal ✓✓O **OR** • Loyalty to bank ✓✓O **OR** • Religious reasons / Economical reasons ✓✓O Any other suitable reason	2O reason (2)	F L4
1.1.3	2014 Fee = R3,50 + 1,1% × R1 000 ✓SF = R14,50 ✓CA % change = $\left(\frac{R15,50}{R14,50} - 1\right) \times 100\%$ ✓SF $= \left(\frac{R1,00}{R14,50}\right) \times 100\%$ ✓CA = 6, 8965517… A ≈ 6,9% ✓R **OR** % change = $\left(\frac{R15,50}{R3,50 + 0,011 \times R1\,000} - 1\right) \times 100\%$ ✓SF ✓SF $= \left(\frac{R15,50}{R14,50} - 1\right) \times 100\%$ ✓CA = 6,8965517… ✓CA A ≈ 6,9% ✓R	1SF substituting R1000 1CA 2014 fee 1SF correct values 1CA simplification 1R rounding **OR** 1SF correct values 1SF substituting R1000 1CA 2014 fee 1CA simplification 1R rounding (5)	F L2

Ques	Solution	Explanation	T&L
1.1.4	Withdrawal fee R15 000 at Bank X ✓SF = R3,95 + 0,013 × R15 000 = R198,95 ✓CA Fees for 4 withdrawals = R198,95 × 4 = R795,80 ✓CA Withdrawal fee for R15 000 at Bank Y = R4,00 + R15 000 × 1,15% = R176,50 ✓CA Fees for 4 withdrawals = 4 × R176,50 = R706,00 ✓CA Difference in fees = R795,80 – R706,00 = R89,80 ✓CA It is NOT VALID. ✓O **OR** Withdrawal fee R15 000 at Bank X ✓MA = R3,95 + 0,013 × R15 000 = R198,95 ✓CA Withdrawal fee for R15 000 at Bank Y = R4,00 + R15 000 × 1,15% = R176,50 ✓CA ✓CA Difference in fees = R198,95 – R176,50 = R22,45 ✓M Saving on 4 withdrawals = R22,45× 4 = R89,80 ✓CA It is NOT VALID ✓O **OR**	1SF substituting 1CA weekly charges 1CA fees for 4 withdrawals 1CA charges 1CA fees for 4 withdrawals 1CA difference 1O conclusion **OR** 1MA substituting 1CA weekly charges 1CA charges 1CA difference 1M fees for 4 withdrawals 1CA October charges 1O conclusion **OR**	F L4

Ques	Solution	Explanation	T&L
	Bank X: Fee per R1 000 = R3,95 + R1,30 ÷ 100 × 1 000 ✓MA = R16,95 ✓CA Withdrawal fee for R15 000 = R16,95 × 15 = R254,25 For 4 withdrawals : R254,25 × 4 ✓M = R1 017 Bank Y: Withdrawal fee for 4 times R15 000 = R15,50 × 4 × 15 ✓CA = R930 ✓CA Difference in fees = R1 017 – R930 = R87 ✓CA It is NOT VALID	1MA substituting 1CA weekly charges 1M fees for 4 withdrawals 1CA charges 1CA October charges 1CA difference 1O conclusion (Max of 6 marks for a total withdrawal of R60 000 .) (7)	
1.1.5	Wage for 4 full weeks = R2 142,85 × 4 ✓A = R8 571,40 Wage for 2 days = $\frac{R2\,142,85}{5} \times 2$ ✓M ✓M = R857,14 Total wage = R8 571,40 + R857,14 = R9 428,54 ✓CA **OR** Average day wage = $\frac{R2\,142,85}{5}$ ✓M **OR** $\frac{R2142,85 \times 4}{20}$ = R428,57 ✓A Total wage for October = 22 × R428,57 ✓M = R9 428,54 ✓CA **OR** 2 days of a five day week = $\frac{2}{5}$ of a week ✓M Total number of weeks = $4\frac{2}{5}$ ✓A **OR** 4,4 Total wage for October = $4\frac{2}{5}$ × R2142,85 ✓M = R9 428,54 ✓CA **OR**	1A 4 weeks wage 1M divide by 5 1M multiply by2 1CA total wage **OR** 1M divide by 5 1A daily wage 1M multiply by 22 1CA total wage **OR** 1M divide by 5 1A number of weeks 1M multiply by weekly wage 1CA total wage **OR**	F L2

Ques	Solution	Explanation	T&L
	Monthly wage = $R2\,142{,}85 \times \frac{52}{12}$ ✓M ✓A ✓MA = R9 285,68 ✓CA	1M multiplying 1A 52 weeks in year 1MA dividing by 12 1CA total wage (4)	
1.2.1	• More small/local companies may have entered the market ✓✓O • The increased use of smartphones, laptops and tablets ✓✓O • Locally produced no need to import. ✓✓O • Cost of transport increased ✓✓O • Economical reasons / factors ✓✓O • Maritime piracy / security ✓✓O • Other means of transport used ✓✓O • Durability - demand for new computers became less ✓✓O Or any other valid factors with reasons	2O factor with reason 2O factor with reason (4)	D L4
1.2.2	Q1 of 2012: (15,7 + 11,7 + 10,1 + 9 + 5,4) million ✓MA = 51,9 million ✓CA **or** 51 900 000 Q1 of 2013: = (12 + 11,7 + 9 + 6,2 + 4,4) million = 43,3 million ✓MA **or** 43 300 000 Difference between 2013 and 2012 = 51,9 mil – 43,3 mil = 8,6 million ✓CA **or** 8 600 000 **OR**	1MA adding correct values 1CA total shipment in 2012 1MA total shipment in 2013 1CA difference in million **OR**	D L2

Ques	Solution	Explanation	T&L
	Differences (in millions) for A = 15,7 – 12,0 = 3,7 B = 11,7 – 11,7 = 0 ✓A C = 10,1 – 9,0 = 1,1 D = 9,0 – 6,2 = 2,8 ✓A E = 5,4 – 4,4 = 1 ✓M Total difference = (3,7 + 1,1 + 2,8 + 1) million = 8,6 million ✓CA	2A differences in millions 1M adding all differences 1CA total difference in million Penalty if million omitted (4)	
1.2.3	✓RT ✓M % change A = $\frac{12\ 000\ 000 - 15\ 700\ 000}{15\ 700\ 000} \times 100\ \%$ = – 23,56687898% ✓CA ✓RT % change D = $\frac{6\,200\,000 - 9\,000\,000}{9\,000\,000} \times 100\ \%$ ✓M = – 31,11111111% ✓CA The statement is NOT VALID. ✓O **OR** Percentage of 2012 shipped in 2013: ✓RT By A: $\frac{12,0}{15,7} \times 100\%$ = 76,43% ✓A ∴ Percentage decrease = 100% – 76,43% = 23,57% ✓M ✓RT By D: $\frac{6,2}{9} \times 100\%$ = 68,89% ✓A ✓M ∴ Percentage decrease = 100% – 68,89% = 31,11% ✓O D shows the greatest decrease, the statement is NOT VALID	1RT correct values 1M calculating % change 1CA % change 1RT correct values 1M calculating % change 1CA % change 1O conclusion **OR** 1RT correct values 1A percentage 1M % change 1RT correct values 1A percentage 1M % change 1O conclusion NP (7)	D L4
		[36]	

QUESTION 2 [47 MARKS]			
Ques	**Solution**	**Explanation**	**T&L**
2.1.1 (a)	✓A Amount × 109,7% = R218,9 billion Total amount spent = $\frac{\text{R218,9 billion}}{109,7\%}$ ✓M = R199 544 211 500 ✓CA **or** R199,54 billion or R1,9954 × 10^{11}	1A correct value and % 1M dividing by 109,7% 1CA total amount NP (3)	F L2
2.1.1 (b)	✓A It is more appropriate to round to one decimal place. If a rand value in billions is rounded off to a whole number, the amount that is added or lost is hundreds of millions of rands. ✓✓O **OR** ✓A It is not appropriate to round to off to a whole number since it has a big financial implication ✓✓O	1A statement 2O explanation (Note: More appropriate can be implied in the statement) (3)	F L4
2.1.2	✓A ✓A International: 43% of R 218,9 billion = R94,127 billion Number of visitors = 14,3 million or 14 300 000 Average spent per visitor = $\frac{\text{R94 127 000 000}}{\text{14 300 000}}$ ✓C ✓MA = R6 582,31 ✓CA This is NOT correct. ✓O **OR** ✓A ✓A International: 43% × R 218,9 billion = R94,127 billion Average spent per visitor = $\frac{\text{R94,127} \times 1000 \text{ million}}{\text{14,3 million}}$ ✓C ✓MA = R6 582,31 ✓CA This is NOT correct. ✓O **OR**	1A percentage 1A amount 1C conversion 1MA average 1CA value 1O conclusion **OR** 1A percentage 1A amount 1C conversion 1MA average 1CA value 1O conclusion **OR**	F L3

Ques	Solution	Explanation	T&L
	Amount spent by the International visitors ✓MA = R6 580 × 14,3 million ✓A ✓C = R94 094 million = R94,094 billion But spent by international tourists is ✓A ✓A 43% × R 218,9 billion = R94,127 billion The amount was NOT CORRECT ✓O	1MA multiplying 1A amount 1C conversion 1A percentage 1A amount 1O conclusion (6)	
2.1.3	✓A ✓A Air transport and road transport	1A for each item (2)	F L2
2.1.4	Payment of tourism levy ✓✓O **OR** ✓✓O Purchase of souvenirs **OR** ✓✓O Entrance fees to tourist attractions **OR** ✓✓O Any other suitable example	2O example (2)	F L4
2.1.5	Growth in 2014 = 2,9% × R103,6 billion ✓M = R3,0044 billion ✓M GDP contribution (2014) = (R3,0044 + R103,6) billion = R106,6044 billion ✓CA Growth in 2015 = 2,9% × R106,6044 billion = R3,0915276 billion GDP contribution (2015) = (R3,0915276 + R106,6044) billion = R109,6959276 billion ✓CA Growth in 2016 = 2,9% × R109,6959276 billion = R3,1811819 billion GDP contribution (2016) = (R3,1811819 + R109,6959276) bil. = R112,8771095 billion ✓CA = R112 877 million ✓R **or** R112 877 000 000 **or** R112,877 billion **OR**	1M multiplying 1M adding 1CA amount in 2014 1CA amount in 2015 1CA amount in 2016 1R correct rounding **OR**	

Ques	Solution	Explanation	T&L
2.1.5	✓A ✓M GDP contribution (2014) = 102,9% × R103,6 billion = 106,6044 billion ✓CA GDP contribution 2015 = 102,9% × R106,6044 billion = 109,6959276 billion ✓CA GDP contribution 2016 = 102,9% × R109,6959276 billion = R112,8771095 billion. ✓CA = R112 877 million ✓R **or** R112 877 000 000 **OR** GDP contribution 2016 ✓M ✓A ✓A = R103,6 billion × 102,9% × 102,9% × 102,9% = R112,8771095 billion. ✓CA = R112,877 billion **or** R112 877 million ✓C **or** R112 877 000 000 ✓R	1M multiplying 1A 102,9% 1CA amount in 2014 1CA amount in 2015 1CA amount in 2016 1R correct rounding 1M multiplying 2A 102,9% CA amount in 2016 1C conversion 1R correct rounding (6)	F L3
2.2.1 (a)	✓✓✓RT Stopover times = 5 + 20 + 5 + 2 + 8 + 2 + 2 + 2 + 23 + ✓M 26 + 3 + 17 + 3 + 14 + 3 + 3 ✓CA = 138 minutes **or** 2 hrs and 18 minutes **or** 2,3 hours	3RT correct stopover times 1M adding stopover times 1CA total stopover time Stopover times: One or two errors only 1 mark penalty, Three or four errors 2 mark penalty AO (5)	D L2
2.2.1 (b)	2 and 3 minutes ✓✓CA	CA From Q2.2.1 (a) 2CA modal time (2)	D L2

Ques	Solution	Explanation	T&L
2.2.1 (c)	Actual train travel time: ✓RT 13:24 (day2) to 17:30 (day1) – stopover time ✓CA = 19 hr 54 min – 2 hr 18 min ✓M = 17 hr 36 min = 17, 6 hr ✓C D = S × T ✓SF 992 km = S × 17hr 36 min S = $\frac{992\text{ km}}{17{,}6\text{ hour}}$ ✓S = 56,36 km/h ✓CA **OR** ✓RT ✓CA Total time = 24 hours – 17h30 + 13h24 = 19hr 54 min ✓M 19hr 54 min – 2 hrs 18 min = 17 hrs 36 min = 17,6 hr ✓C D = S × T ✓SF 992 km = S × 17,6 hr S = $\frac{992\text{ km}}{17{,}6\text{ hour}}$ ✓S ≈ 56 km/h ✓CA **OR** From 17:30 to 00:00 = 6 hrs 30 min From 00:00 to 13:24 = 13hrs 24 min ✓RT ✓CA Time of journey = 19 hrs and 54 minutes ✓M Travel time = 19 hr 54 min – 2 hr 18 min = 17 hr 36 min D = S × T ✓SF 992 km = S × 17,6 hr Average Speed = $\frac{992\text{ km}}{17{,}6\text{ hour}}$ ✓S ✓C = 56,36 km/h ✓CA	CA From Q2.2.1(a) 1RT start and end time 1CA 19 hours 54 min 1M subtracting stopover time 1C conversion 1SF substitution 1S changing subject of formula 1CA simplification **OR** 1RT start and end time 1CA 19 hours 54 min 1M subtracting stopover time 1C conversion 1SF substitution 1S changing subject of formula 1CA simplification **OR** 1RT start and end times 1CA trip time 1M subtracting stopover time 1SF substitution 1S changing subject of formula 1C conversion 1CA simplification NP (7)	M L3

Ques	Solution	Explanation	T&L
2.2.2	**Forward trip in January:** Parents = 2 × R560 = R1 120 ✓MA Father = R560 – R560 × 25% ✓MA **OR** R560 × 75% = R420 ✓CA Children's fare = R560 × 80% = R448 ✓MA Two children = 2 × R448 = R896 ✓CA Total fare for family: R1 120 + R420 + R896 = R2 436 ✓CA **Return trip in February:** Parents fare = 2 × R490 = R980 ✓A Father = R490 minus R490 × 25% or R490 × 75% = R367,50 ✓A Two children = 2 × (R490 – R490 × 50%) = R490 ✓A Total fare for return trip = R980 + R490 + R367,50 = R1 837,50 ✓CA Total cost for both trips = R2 436 + R1 837,50 = R4 273,50 ✓CA **OR**	1MA two adult price 1MA discounted price for over 55 yrs 1CA father's fare 1MA children fare 1CA total children's fare 1CA Jan total fares 1A adults Feb fare 1A senior citizen fare 1A children Feb fare 1CA total Feb trip's fare 1CA total trip fare (Note: Max of 6 marks if only one trip is calculated ; Max of 9 marks for using the same fare for both trip) **OR**	Fin L3

Ques	Solution	Explanation	T&L
	✓MA ✓MA Father's fare = (R560 + R490) × 75% ✓M = R787,50 ✓CA Parents' fare = 2 ×(R560 + 490) ✓MA = R2 100 ✓CA ✓MA ✓MA ✓A Children's fare = (R560 × 80% + R490 × 50%) × 2 = R1 386 ✓CA Total fare for both trips = R787,50 + R2 100 + R1 386 = R4 273,50 ✓CA	1MA adding correct values 1MA 75 % 1M % calculation 1CA simplification 1MA adding and multiplying 1CA simplification 1MA 80% 1MA 50% 1A correct values 1CA simplification 1CA total return trip fare (11)	
		[47]	

QUESTION 3 [31 MARKS]			
Ques	**Solution**	**Explanation**	**T&L**
3.1.1	Capacity of section C $= 5\text{ m} \times 1,2\text{ m} \times 15\text{ m}$ ✓SF $= 90\text{ m}^3$ ✓CA Capacity of section A $= 2\text{ m} \times 12,5\text{ m} \times 15\text{ m}$ ✓SF $= 375\text{ m}^3$ ✓CA Maximum capacity $= 90\text{ m}^3 + 375\text{ m}^3 + 300\text{ m}^3$ ✓MA $= 765\text{ m}^3$ **OR** Maximum capacity = Capacity of section (A + B + C) $= 2\text{ m} \times 12,5\text{ m} \times 15\text{ m} + 300\text{ m}^3 + 5\text{ m} \times 1,2\text{ m} \times 15\text{ m}$ ✓SF ✓SF $= 375\text{ m}^3 + 300\text{ m}^3 + 90\text{ m}^3$ ✓CA ✓CA ✓MA $= 765\text{ m}^3$ **OR** Volume $= 30\text{ m} \times 15\text{ m} \times 2\text{ m}$ ✓SF $= 900\text{ m}^3$ ✓CA Volume beneath C $= 5\text{ m} \times 15\text{ m} \times 0,8\text{ m}$ $= 60\text{ m}^3$ Volume beneath B $= \frac{1}{2} \times 12,5\text{ m} \times 15\text{ m} \times 0,8\text{ m}$ ✓SF $= 75\text{ m}^3$ ✓CA Maximum capacity $= 900\text{ m}^3 - 60\text{ m}^3 - 75\text{ m}^3$ $= 765\text{ m}^3$ ✓MA	1SF correct values 1CA capacity section C 1SF correct values 1CA capacity section A 1MA adding capacities in m^3 **OR** 1SF Correct values for A 1SF correct values for C 1CA capacity section A 1CA capacity section C 1MA adding capacities in m^3 **OR** 1SF volume 1CA volume section A 1SF volume beneath B 1CA volume beneath B 1MA subtracting volume in m^3 (5)	M L3
3.1.2	Volume of water $= 94\% \times 765\text{ m}^3$ ✓M $= 719,1\text{ m}^3$ $= 719\,100\ \ell$ ✓C $= \frac{719\,100 \times 1}{3,785}$ gallons ✓C $\approx 189\,986,79$ gallons ✓CA **OR**	1M calculating % 1C convert to litres 1C convert to gal. 1CA simplification **OR**	M L3

Ques	Solution	Explanation	T&L
	Capacity (in litres) = $765\ m^3 \times 1\ 000 = 765\ 000\ \ell$ ✓C Capacity(in gallons) = $\frac{765\,000}{3{,}785}$ ✓C $= 202\ 113{,}6063$ Volume of water = $94\% \times 202\ 113{,}6063$ ✓M $= 189\ 986{,}79$ gallons ✓CA	1C convert to litres 1C convert to gal. 1M calculating % 1CA simplification NP (4)	
3.1.3	In 1 hour 2 350 litres of water will flow. In 1 day: $24 \times 2\ 350$ litres ✓MA $= 56\ 400$ litres will flow ✓CA In $2\frac{1}{2}$ days amount of water flowing = $2\frac{1}{2} \times 56\ 400$ litres ✓M $= 141\ 000$ litres ✓CA ∴ Statement is NOT VALID. ✓O **OR** Time to fill swimming pool = $\frac{135\,000\ell}{2\,350\ell/\text{h}}$ ✓MA $\approx 57{,}4468$ hours ✓CA 57,4468 hrs = 2 days and 9 h 27 min ✓M Two and a half days = 2 days 12 hours ✓C ∴ Statement is NOT VALID ✓O **OR** Time to fill swimming pool = $\frac{135\,000\ell}{2\,350\ell/\text{h}}$ ✓MA $\approx 57{,}4468$ hours ✓CA · Two and a half days = $(2 \times 24 + 12)$ hours = 60 hours ✓MA ✓A ∴ Statement is NOT VALID ✓O **OR**	1MA using flow rate 1CA water in 1 day 1M multiplying 1CA simplification 1O conclusion **OR** 1MA finding time taken 1CA time 1M splitting calc. hrs 1C converting two and a half days 1O conclusion **OR** 1MA finding time taken 1CA time 1MA multiply with 24 and add 12 1A hours 1O conclusion **OR**	

Ques	Solution	Explanation	T&L
3.1.3	Time to fill swimming pool = $\frac{135\,000\ell}{2\,350\ell/\text{h}}$ ✓MA $\approx 57{,}4468$ hours ✓CA 57,4468 hours ÷ 24 hours/day = 2,3936 ✓MA ✓CA NOT VALID ✓O **OR** $2\frac{1}{2}$ days × 24 h/d = 60 hours ✓MA ✓A Volume of water = 60 hours × 2 350 ℓ/hour ✓MA = 141 000 ℓ ✓CA This is more than the 135 000 ℓ to be topped up The statement is NOT VALID ✓O	1MA finding time taken 1CA time 1MA dividing by 24 h/d 1CA days 1O conclusion **OR** 1MA multiplying with 24 h/d 1A number of hours 1MA multiplying hours with flow rate 1CA simplification 1O conclusion (5)	M L3
3.2.1	Total = 18 × 15 = 270 ✓MA Difference = 270 – 236 = 34 ✓M $x = 34 \div 2$ ✓M = 17 ✓CA **OR** Mean = $\frac{2x + 236}{18} = 15$ ✓MA $2x = 270 - 236$ ✓M $= 34$ $x = \frac{34}{2}$ ✓M = 17 ✓CA **OR**	1MA multiplying 1M subtracting totals 1M dividing by 2 1CA value of x **OR** 1MA adding correct values 1M subtracting totals 1M dividing by 2 1CA value of x **OR**	Data L3

Ques	Solution	Explanation	T&L
	Mean $= \frac{2x + 236}{18} = \frac{2x}{18} + 13{,}1111$ ✓M ✓M $15 - 13{,}1111 = 1{,}8888...$ $\frac{2x}{18} = 1{,}8888...$ ✓CA $x = 1{,}888... \times 18 \div 2$ $= 17$ ✓CA	1M adding correct values 1M mean concept 1CA manipulating formula 1CA value of x AO (4)	
3.2.2	$Q_1 = 15$ ✓RG and $Q_3 = 20$ ✓RG IQR $= 20 - 15$ ✓M $= 5$ ✓CA	1RG finding Q_1 1RG finding Q_3 1M subtracting 1CA IQR value AO (4)	Data L3
3.2.3	It is more convenient for them to go in the evening ✓✓O **OR** During daytime other distractions keep people away. ✓✓O **OR** Small groups receive individual attention ✓✓O **OR** Any other sensible reason ✓✓O	2O reason (2)	D L4
3.2.4	$P_{(\text{Day Group full attendance})} = \frac{6}{18} \times 100\%$ ✓A ✓A $\approx 33\%$ ✓R	1A numerator 1A denominator 1R whole % AO (3)	P L2
3.2.5	The range of the afternoon group was smaller. ✓✓O The afternoon group has a higher median. ✓✓O The afternoon group has smaller inter-quartile range. ✓✓O Minimum of the afternoon group is higher. ✓✓O (Any TWO acceptable reasons)	2O reason 2O reason (4)	D L4
		[31]	

QUESTION 4 [36 marks]			
Ques	**Solution**	**Explanation**	**T&L**
4.1.1	✓MA 0,21875 miles = 385 yards Hence, 1 mile = $\frac{385}{0,21875}$ yards ✓MA = 1 760 yards **OR** $\frac{1}{0,21875}$ = 4,571428571 ✓MA ✓MA 385 × 4,571428571 = 1760 yards	1MA recognising equal parts 1MA correct fraction **OR** 1MA conversion factor 1MA multiplying 385 with conversion factor (2)	M L2
4.1.2	Approximately 4,5 miles ✓✓RG (Accept distances in the range 4,3 miles to 4,7 miles)	2RG correct distance. (2)	MP L2
4.1.3	✓RG ✓C ✓CA 700 ft = 700 × 0,3038 m = 212,66 m (Accept heights in the range 700 ft to 710 ft)	1RG correct distance 1C converting to m 1CA max height NP (3)	MP L2
4.1.4	It is uphill. (steep) ✓✓O **OR** This runner found it difficult to run uphill. ✓✓O **OR** It is easier to run downhill. ✓✓O	2O reason (2)	MP L4
4.2.1	✓A ✓A 6 + 3 or 9 [Due to the annexure of Limpopo full marks can be awarded if only 6 is given as the number of venues]	2A number of venues (2)	MP L2
4.2.2	Hippo ✓✓A	2A correct enclosure (2)	MP L2

Ques	Solution	Explanation	T&L
4.2.3	Zoo is 6 times bigger than the elephant exhibit. ✓✓A ∴ $6 \times 4 = 24$ ✓M football fields ✓CA Also accept 5 or 7 as a correct estimation. ANSWER ONLY full marks if 20 to 28 football fields.	2 A estimation 1M multiplying 1CA solution (Max 2 marks for number of football fields for estimated areas of 3,4 ,8 or 9.) (4)	MP L4
4.2.4	The distance on the map = 85 mm ✓A Bar scale 20 mm ✓A is 200 m ✓M Real distance using the bar scale = $\frac{85\text{ mm}}{20\text{ mm}} \times 200\text{ m}$ ✓M = 850 m ✓CA 1,6 km = 1 600 m ✓C ∴ The scale is NOT correct. ✓O **OR** Bar scale 20 mm ✓A is 200 m ✓M 1,6 km = 1 600 m ✓C Calculated map distance = $\frac{1\,600\text{ m}}{200\text{ m}} \times 20\text{ mm}$ ✓M = 160 mm ✓CA Measured distance = 85 mm ✓A ∴ The scale is NOT correct. ✓O (Accept a range from 82 mm to 87 mm for the distance between streets and 18 mm to 22 mm for the bar scale.)	1A measured distance 1A measured bar 1M relating to bar to measurement 1M using the given scale 1CA simplification 1C conversion 1O conclusion **OR** 1A measured bar 1M relating to bar to measurement 1C conversion 1M using the given scale 1CA simplification 1A measured distance 1O conclusion (7)	MP L4
4.3.1	Saturday ✓✓A	2A correct day (2)	D L2
4.3.2	Monday is NOT reflected on the given graph. ✓✓O	2O reasoning (2)	P L4

Ques	Solution	Explanation	T&L
4.3.3	The number of visitors increase to about 12:00. on weekdays and then decrease again till 16:00. ✓✓O **OR** The number of visitors on weekends is more than the visitors on weekdays. ✓✓O **OR** The number of visitors increase to about 13:00 on weekends and then decrease again till 16:00. ✓✓O Any TWO trends relating time and number of visitors.	2O trend 2O trend (4)	D L4
4.3.4	The number indicated by the height of the column on Saturday is a little more than double the height of the mean number for a Tuesday ✓✓O **OR** People work during the week ✓✓O **OR** Saturdays they go with their families to the zoo. ✓✓O **OR** Cheaper to go during the weekends ✓✓O **OR** More activities at the zoo on Saturday. ✓✓O	2O reason 2O reason (4)	D L4
		[36]	

TOTAL: 150