GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PREPARATORY EXAMINATION

2016

MEMORANDUM

MATHEMATICAL LITERACY P1 (10601)

Codes	Explanation
M	Method
MA	Method with 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

14 pages

GAUTENG DEPARTMENT OF EDUCATION

PREPARATORY EXAMINATION – 2016

MATHEMATICAL LITERACY
(First Paper)

MEMORANDUM

KEY TO TOPIC SYMBOL:

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

QUESTION 1 [47]

Ques	Solution	Explanation	Level
1.1.1	Gross monthly income = R14 872 + R780 ✓M = R15 652 ✓A	1M Method 1A Answer **Answer only full marks** (2)	L1 F
1.1.2	Annual income = R15 652 x 12 = R187 824 ✓MA Taxable income = Annual income – Annual Pension ✓M ✓MA = R187 824 – (R1 112,03 x 12) = R187 824 – R13 344,30 = R174 479,70 ✓A **OR** R15 652 – R1 112,03 ✓MA = R14 539,97 ✓A Annual = R14 537,97 x 12 ✓MA = R174 479,70 ✓A	1MA Calculating annual income 1M Subtraction 1MA Multiplication by 12 1A Answer (4) 1MA Deduct / Minus 1A Answer 1MA Multiplication by 12 1A Answer (4)	L3 F

Ques	Solution	Explanation	Level
1.1.3a	Medical Tax Credits = (Tax Credit of Main member + Tax Credits of dependants) x 12 = (R257 + R257) x 12 ✓MA = R6 168 ✓A **OR** (R257 x 2) x 12 ✓MA = R6 168 ✓A	1MA Addition and Multiplication by 12 1A Answer (2)	L2 F
1.1.3b	Tax payable = Annual tax – Rebate – Medical credits ✓RT ✓MA = (18% × R174 479,70) – R12 726 – (R257 × 2 × 12) = R31 406,35 – R12 726 – R6 168 ✓S = R12 512,35 ✓CA	1RT Reading correct value 1MA Multiply by 2 and 12 1S Simplification both brackets 1CA Answer **CA from Q1.1.2** (3)	L2 F
1.1.3c	Monthly PAYE = R12 512,35 ÷ 12 = R1 042,695833 ≈ R1 042,70 ✓CA	1CA Answer 1R Rounding **CA from Q1.1.3a** (2)	L1 F
1.1.4a	Total deductions = R1 042,70 + R1 112,03 + R1 500 + R148,72 ✓MA = 3 803,45 ✓A	1MA Addition 1A Answer **Answer only ful arks** (2)	L1 F
1.1.4b	Nett monthly income = R15 652 – R3 803,45 ✓MA = R11 848,55 ✓A	1MA Subtraction 1A Answer **Answer only full marks** (2)	TL1 F
1.1.5a	1% ✓✓A	2A Answer (2)	TL1 F
1.1.5b	Total amount for the month paid over for UIF = R148,72 x 2 **OR** R148,72 + R148,72 ✓MA = R297,44 ✓A	1MA Knowing to double the amount 1A Answer **Answer only full marks** (2)	TL1 F

1.1.6	Annual medical tax credit = [(R257 x 2) + R172] × 12 ✓MA = R686 x 12 = R8 232 ✓A	1MA Adding R172 and Multiply by 12 1A Answer **Answer only full marks** (2)	TL2 F
1.1.7a	Annual amount saved = Monthly amount saved x 12 = R3 000 x 12 = R36 000 ✓A	1A Answer **Answer only full marks** (1)	L1 F
1.1.7b	Simple interest = Amount saved x interest rate x term $= R36\,000 \times \frac{3,4}{100}$ = R1 224 ✓A Amount saved = R36 000 + R1 224 = R37 224 ✓CA **OR** $R36\,000 \times \frac{103,4}{100}$ ✓M = R37 224 ✓CA **OR** $R36\,000 + (R36\,000 \times \frac{3,4}{100})$ ✓M = R37 224 ✓CA	1A Answer 1CA Answer 1M Multiply by 103,4 % 1CA Answer 1M Addition 3,4% 1CA Answer (2)	L1 F
1.2.1	Amount to be financed = Purchase Price – (Deposit + Admin Fee + Registration/Licence Fee) ✓MA ✓MA = R104 995 – (R10 500 + R1 010 + R788) = R96 293,00 ✓A	1MA Subtract deposit 1MA Adding correct values 1A Answer (3)	L2 F

Ques	Solution	Explanation	Level
1.2.2	Amount to be financed = Purchase Price + Admin Fee + Registration/Licence Fee = R104 995 + R1 010 + R788 ✓MA = R106 793 ✓A Year 1: R106 793 + ($\frac{12}{100} \times R106\ 793$) ✓MA = R106 793 + R12 815,16 = R119 608,16 ✓CA Year 2: = R119 608,16 + ($\frac{12}{100} \times R119\ 608{,}16$) = R119 608,16 + R14 352,9792 = R133 961,14 ✓CA	1MA Adding correct amounts 1A Answer 1MA Addition and multiplication 1CA Answer year 1 1CA Answer year 2 (5)	L2 F
1.2.3	Percentage Deposit ✓MA = $\frac{R10\ 500}{R104\ 995} \times 100\%$ ✓M = 10,0004… % ✓A = 10% ✓R	1MA Correct values in fraction 1M Multiply by 100% 1A Answer 1R Rounding (4)	L1 F
1.3.1	Interest rate: A **percentage** of a sum of money charged by the bank for lending money to a person. ✓✓O **OR** Any similar definition	2O Definition (2)	L1 F
1.3.2	Percentage increase = $\frac{\text{New Amount} - \text{Old Amount}}{\text{Old Amount}} \times 100\%$ = $\frac{R157{,}50 - R140{,}00}{R140{,}00} \times 100\%$ ✓SF $\frac{R17{,}50}{R140{,}00} \times 100\%$ ✓S = 12,5% ✓CA	2SF Substitution 1S Simplification 1CA Answer (3)	L2 F

Ques	Solution	Explanation	Level
1.3.3	Value B = R140,00 + R179,39 + R170,86 + R584,79 + R380,98 ✓MA = R1 465,02 ✓A	1MA Addition 1A Answer **Answer only full marks** (2)	L1 F
1.3.4	Vat 2017 = R1 655,55 × $\frac{14}{100}$ ✓✓MA = R231,78	1MA Correct value 1MA Multiply by 14% (2)	L1 F
1.3.5	Additional amount to budget = R1 887,33 – R1668,86 ✓MA = R218,47 ✓A	1M Calculating 12% 1A Answer **Answer only full marks** (2)	L1 F
			[47]

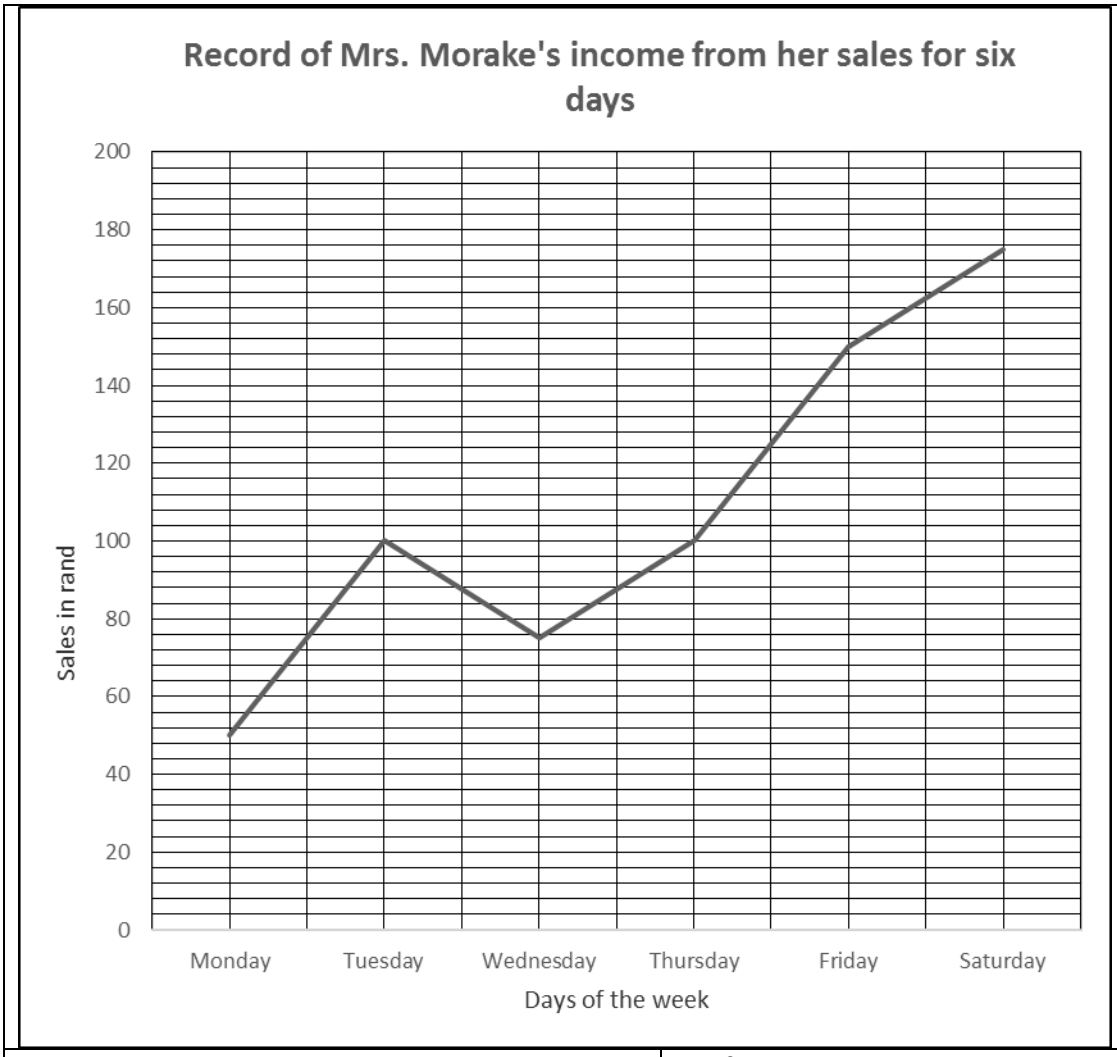
QUESTION 2 [29]			
Ques	**Solution**	**Explanation**	**Level**
2.1.1(a)	Length = 24 inches x 2,54 ✓C = 60,96 cm ✓A Width = 12 inches x 2,54 = 30,48 cm ✓A Depth = 10 inches x 2,54 = 25,4 cm ✓A	1C Conversion 1A Answer length 1A Answer breadth 1A Answer height (4)	L2 M
2.1.1(b)	Volume = L × B × H ✓SF = 60,96 cm × 30,48 cm × 25,4 cm = 47 194,74432 cm^3 = 47 194,74 cm^3 ✓CA	1SF Substitution 1CA Answer (2)	L2 M
2.1.2a	Triangular containers to fit in length ✓MA = (60,96 cm ÷ 10 cm) × 2 ✓MA = 12,192 ≈ 12 ✓A	1MA Division with correct values 1MA Multiply by 2 1AR Answer (3)	L2 M
2.1.2b	Triangular containers to fit in width = (30,48 cm ÷ 10 cm) × 2 ✓MA = 6,096 ≈ 6 ✓A ✓R	1MA Division and multiply with correct values 1A Answer 1R Rounding (2)	L2 M
2.1.3	Number of cardboard boxes $= \frac{\text{Number of children}}{\text{Number of triangular containers}}$ $= \frac{1\,500}{144}$ ✓MA = 10,4166 … boxes ≈ 10,5 boxes **OR** 10½ boxes ✓AR	1MA Division 1AR Answer correctly rounded **Answer only full marks** (2)	L1 M
2.2.1	80 : 5 ✓MA 16 : 1 ✓S	1MA Correct ratio 1S Simplification (2)	L1 M

Ques	Solution	Explanation	Level
2.2.2	P(Sandwich Spread) = $\frac{5}{144}$ × 100% ✓M ✓MA = 3,472 …% ≈ 3,47% ✓A	1M Multiply by 100% 1MA Correct values in fraction 1A Answer **NP for rounding** (2)	L1 L
2.3	The time that it will take Mrs. Madiba to reach the school. = 10:50 + 45 min ✓MA = 11:35 ✓A	1MA Addition 1A Answer (2)	L1 M
2.4.1	97th Percentile ✓✓RG	2RG Read from graph (2)	L1 M
2.4.2	150 cm ÷ 100 = 1,5 m ✓C $\text{BMI} = \frac{\text{Mass (in kg)}}{(\text{length in m})^2}$ 27 kg/m^2 = $\frac{\text{Mass (in kg)}}{(1{,}5\text{ m})^2}$ ✓SF 27 kg/m^2 × 2,25 m^2 = Mass (in kg) ✓M 60,75 kg = Mass ✓CA Yes ✓J Mrs. Madiba's opinion is correct. ✓J	1C Conversion 1SF Substitution 1M Manipulating formula 1CA Answer 2J Justification (6)	L2 M
2.4.3	Suzy's new BMI = 21,8 kg/m^2 ✓✓RG	2RG Reading from the graph (2)	L1 M
			[29]

QUESTION 3 [20]			
Ques	**Solution**	**Explanation**	**Level**
3.1.1	Total distance = 89 km ✓✓RM	2RM Reading from map (2)	L1 MP
3.1.2a	Drummond ✓RM 11:30 **OR** Half past 11 ✓RM	2RM Reading from map (2)	L1 MP
3.1.2b	Approximately 45 km ✓RM	1RM Reading form map (1)	L1 MP
3.1.3	Between Botha's Hill and Pinetown ✓✓RM **OR** Botha's Hill to Winston Park ✓✓RM	2RM Reading from map (2)	L1 MP
3.1.4	Average Speed = $\frac{\text{Distance}}{\text{Time}}$ = $\frac{89\text{ km}}{6{,}5\text{ h}}$ ✓SF = 13,6923 … km/h ≈ 13,69 km/h ✓CA	1SF Substitution 1CA Answer NP **for rounding** (2)	L1 MP
3.1.5	Just after Drummond is an uphill Slight uphill on Botha's hill ✓A Small downhill down Botha's hill ✓A Steepest sloping uphill ✓A Steepest sloping downhill ✓A Long downhill run ✓A	5A One mark per description (5)	L2 MP
3.2.1	1 : 500 ✓✓ RM	2RP Reading from plan (2)	L1 MP
3.2.2	Every **1 unit** on the plan represents **500 units** in actual dimensions✓✓RP	2RP Reading from plan **No units of measurements necessary e.g. cm, mm, m.** (2)	L1 MP
3.2.3	South Western Wall = 9,8 cm ✓✓RP	2RP Reading from plan (2)	L1 MP
			[20]

QUESTION 4 [35]			
Ques	**Solution**	**Explanation**	**Level**
4.1.1	12 ✓✓MA	2MA Adding the number of ages (2)	L1 D
4.1.2	6 hours 11 minutes 59 sec ✓✓ RT **OR** 06:11:59	2RT Reading from table (2)	L1 D
4.1.3	Time range = 5h 38m 01s – 3h 38m 10s ✓MA = 1h 59m 51s ✓A	1MA Subtracting correct values 1A Answer **Answer only full marks** (2)	L1 D
4.1.4	Mean age = $\frac{18+17+17+16+18+17+18+20+25+25}{10}$ ✓MA = $\frac{191}{10}$ ✓M = 19,1 ≈ 19 years ✓A	1MA Concept of mean 1M Denominator 1A Answer (3)	L2 D
4.2.1	Mode = 292 minutes ✓A	1A Correct Mode (1)	L1 D
4.2.2	Mean = $\frac{193 + 220 + \ldots + 372}{9}$ = $\frac{2478}{9}$ = 275,33 minutes ✓A Mean time = $\frac{275{,}33}{60}$ ✓MA = 4,5888 … hours = 4 hours 35 minutes ✓C	1A Mean 1MA Mean time 1C Conversion (3)	L3 D

Ques	Solution	Explanation	Level
4.2.3	228; 237; 250; 251; 281; 292; 292; 306; 329; 338 ✓MA Median = $\frac{281 + 292}{2}$ ✓MA = 286,5 minutes ✓A	1MA Ascending order 1MA Concept of median 1A Answer (3)	L2 D
4.2.4	Range = Highest – Lowest = 372 – 193 ✓MA = 179 minutes ✓A	1MA Concept of range 1A Answer **Answer only full marks** (2)	L1 D
4.3.1	Baised ✓AA	2RG Reading from graph (2)	L1 D
4.3.2	(a) Only a definite number of values is possible. The data takes only certain values. E.g. the number of learners in a class. (One cannot have 'half a learner'.) (b) Information can be measured continuously. An infinite number of steps.	2J Justification✓ (2) 2J Justification✓ (2)	L1 D L1 D

4.4.1			
			L2 D
	1A 50 1A 100 1A 100 1A 150 1A 75 1A 175	6A for the 6 points correctly plotted (6)	
4.4.2	Profit = R8,00 x 26 ✓ M = R208,00 ✓✓ AA	1M x 26 2A Answer **Answer only full marks** (3)	L1 D
4.4.3	Tuesday ✓ and Thursday ✓ RT	2RG Reading from table (2)	L1 D
			[35]

Question 5 [19]			
Ques	**Solution**	**Explanation**	**Level**
5.1.1	1 299 men ✓RT	1RT Reading from table (1)	L1 D
5.1.2	2 508 men ✓ RT	1RT Reading from table (1)	L1 D
5.1.3	Drinkers : High Blood Pressure 2552 : 688 ✓MA 3.709 : 1 4 :1 ✓AR	1MA Ratio with correct values 1AR Answer and rounding (2)	L1 D
5.1.4	P(No High Blood Pressure) = 2 508 / 3 119 ✓MA	1MA Numerator 1A Denominator (2)	L2 D
5.2.1	P = Current reading – Consumption = 125 334 kℓ – 34,5 kℓ ✓MA =125 299,5 ✓A	1MA Subtraction 1A Answer **Answer only full marks** (2)	L1 M
5.2.2	≤6kl free 9 × R8,60 = R77,40 10 × R9,60 = R96.00 ✓M 9,5 × R10,60 = R100,70 ✓MA Total **(Q)** = R274.10 ✓CA	1M First 2 charges 1M Multiply by 9,5 1CA Answer (3)	L1 F
5.2.3a	≤4kl free 3 × R4,67 = R14.01 8 × R9,94 = R79,52 R93,53 Remaining amount = R181,60 – R93,53 = R88,07 ✓M	1M Calculation of first three tariffs 1MA Dividing amount remaining by R14,60 1CA Answer (3)	L3 FM
5.2.3b	Remaining kℓ = $\frac{R88,07}{R14,60}$ = 6,03 kℓ ✓MA **R** = 4kℓ + 3kℓ + 8kℓ + 6,03kℓ = 21.03 kℓ ✓CA	1MA Calculate remaining kl used 1CA Answer (2)	L3 FM

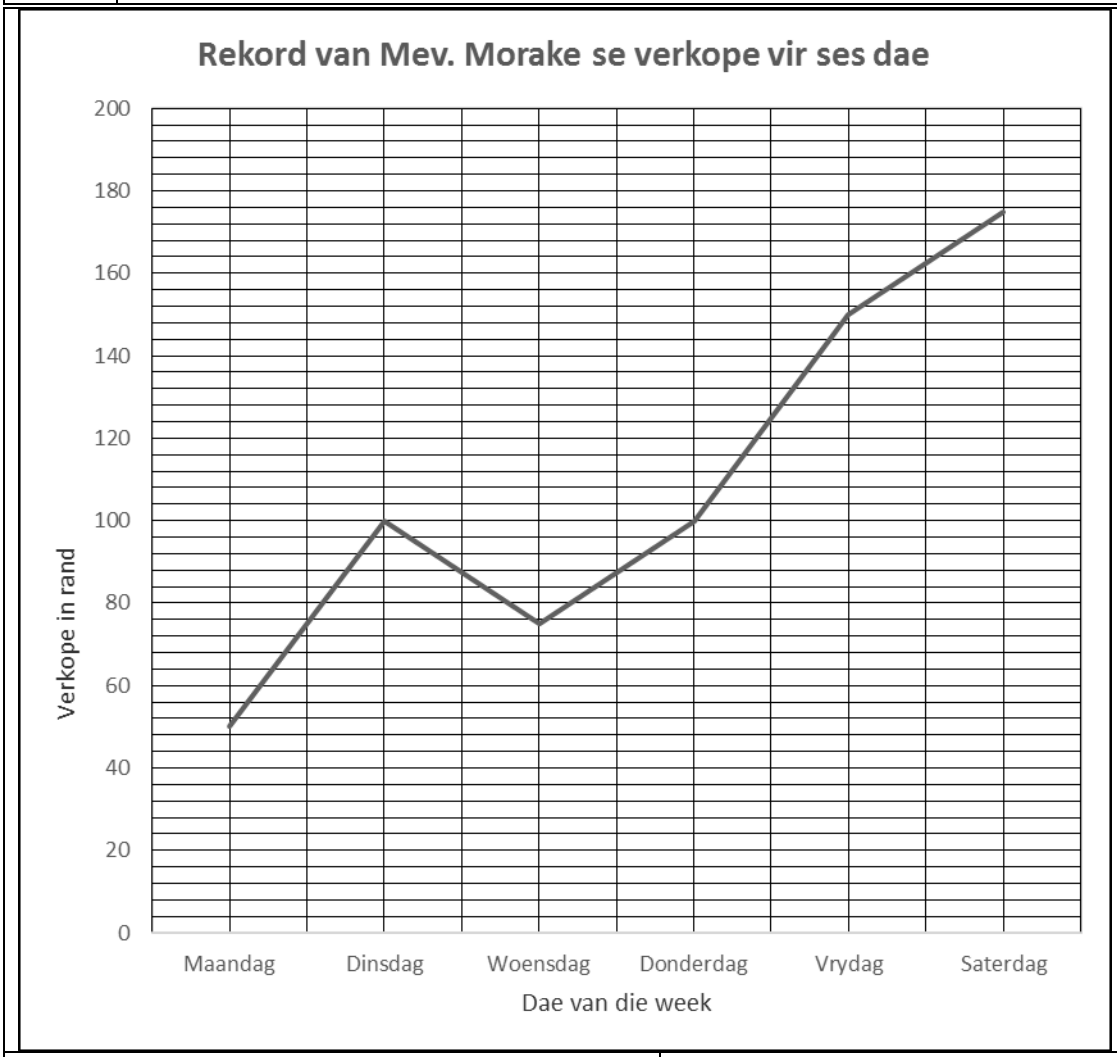
Ques	Solution	Explanation	Level
5.2.3c	**S** = 14% of (R181,60+ R274,10) ✓MA **S** = $\frac{14}{100}$ × R455,70 ✓S **S** = R63,798 **S** = R63,80 ✓A	1MA 14% of correct amounts 1S Simplification of bracket 1A Answer (3)	L1 M
5.2.4	**T** = R63,80 + R 455,70 ✓M **T** = R519,50 ✓CA	1M Addition 1CA Answer **Answer only full marks** (2)	L1 M
			[19]

TOTAL: 150

Vr	Oplossing	Verduideliking	Vlak
5.2.3c	**S** = 14% of (R181,60+ R274,10) ✓MA **S** = $\frac{14}{100}$ × R455,70 ✓S **S** = R63,798 **S** = R63,80 ✓A	1MA 14% van korrekte bedrae 1S Vereenvoudiging van hakies 1A Antwoord (3)	L1 M
5.2.4	**T** = R63,80 + R 455,70 ✓M **T** = R519,50 ✓CA	1M Optel 1CA Antwoord **Slegs antwoord volpunte** (2)	L1 M
			[19]

TOTAAL: 150

VRAAG 5 [19]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
5.1.1	1 299 mans ✓RT	1RT Lees vanaf tabel (1)	L1 D
5.1.2	2 508 mans ✓ RT	1RT Lees vanaf tabel (1)	L1 D
5.1.3	Drinkers : Hoë bloeddruk 2 552 : 688 ✓MA 3.709 : 1 4 :1 ✓AR	1MA Verhouding met korrekte waardes 1AR Antwoord en afronding (2)	L1 D
5.1.4	P(Nie hoë bloeddruk) = 2 508 ✓ / 3 119 ✓MA	1MA Noemer 1MA Teller (2)	L1 D
5.2.1	A = Huidige lesing – Verbruik = 125 334 kℓ – 34,5 kℓ ✓MA =125 299,5 ✓A	1MA Aftrek 1A Antwoord **Slegs antwoord volpunte** (2)	L1 M
5.2.2	≤6kl Gratis 9 × R8,60 = R77,40 ✓M 10 × R9,60 = R96.00 ✓M 9,5 × R10,60 = R100,70 ✓MA Totaal **(Q)** = R274.10 ✓CA	1M Eerste 2 koste 1M Vermenigvuldig met 9,5 1CA Antwoord (3)	L2 F
5.2.3a	≤4kl Gratis 3 × R4,67 = R14.01 ✓M 8 × R9,94 = R79,52 R93,53 ✓CA Oorblywende bedrag = R181,60 – R93,53 = R88,07 ✓CA	1M Berekening van eerste drie kostes 1CA Antwoord 1CA Antwoord (3)	L3 FM
5.2.3 b	Oorblywende kℓ = $\frac{\text{R88,07}}{\text{R14,60}}$ = 6,03 kℓ ✓MA **R** = 4kℓ + 3kℓ + 8kℓ + 6,03kℓ = 21.03 kℓ ✓CA	1MA Bereken oorblywende kl gebruik 1CA Antwoord (2)	L3 FM

4.4.1			
			L2 D
1A 50 1A 100 1A 100 1A 150 1A 75 1A 175		6A vir die 6 punte korrek geplot (6)	
4.4.2	Wins = R8,00 x 26 ✓M = R208,00 ✓✓AA	1M Vermenigvuldig met 26 2A Antwoord **Slegs antwoord volpunte** (3)	L1 D
4.4.3	Dinsdag ✓RT Donderdag ✓RT	2 RT Lees vanaf tabel (2)	L1 D
			[35]

Vr	Oplossing	Verduideliking	Vlak
4.2.3	228; 237; 250; 251; 281; 292; 292; 306; 329; 338 ✓MA Mediaan = $\frac{281 + 292}{2}$ ✓MA = 286,5 minute ✓A	1MA Stygende volgorde 1MA Konsep van mediaan 1A Antwoord (3)	L2 D
4.2.4	Omvang = Hoogste – Laagste = 372 – 193 ✓MA = 179 minute ✓A	1MA Konsep van omvang 1A Antwoord **Slegs antwoord volp nte** (2)	L1 D
4.3.1	Vooroordeeld ✓✓AA	2A Antwoord (2)	L1 D
4.3.2	(a) Slegs 'n definitiewe aantal waardes is moontlik. Die data neem sekere waardes bv. die aantal student in 'n klas (jy kan nie 'n halwe student hê nie) ✓✓J (b) Inligting kan gemeet word op 'n continuum skaal. Oneindigende aantal stappe. ✓✓J	2J Regverdiging (2) 2J Regverdiging (2)	L1 D

VRAAG 4 [35]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
4.1.1	12 ✓✓MA	2MA Optel aantal ouderdomme (2)	L1 D
4.1.2	6 ure 11 minute 59 sek ✓✓ RT **OF** 06:11:59	2RT Lees vanaf tabel (2)	L1 D
4.1.3	Omvangstyd = 5h 38m 01s – 3h 38m 10s ✓MA = 1h 59m 51s ✓A	1MA Aftrek van korrekte Waardes 1A Antwoord **Slegs antwoord volpunte** (2)	L1 D
4.1.4	Gem. = $\frac{18+17+17+16+18+17+18+20+25+25}{10}$ ✓MA = $\frac{191}{10}$ ✓M = 19,1 ≈ 19 jaar ✓A	1MA Konsep van gemiddeld 1M Teller 1A Antwoord (3)	L2 D
4.2.1	Modus = 292 minute ✓A	1A Korrekte Modus (1)	L1 D
4.2.2	Gemiddeldd = $\frac{193 + 220 + \ldots + 372}{9}$ = $\frac{2478}{9}$ = 275,33 minute ✓A Gemiddelde tyd = $\frac{275,33}{60}$ ✓MA = 4,5888… ure = 4 ure 35 minute ✓C	1A Gemiddeld 1MA Gemiddelde tyd 1C Herleiding (3)	L3 D

VRAAG 3 [20]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
3.1.1	Totale afstand = 89 km ✓✓RM	2RM Lees vanaf kaart (2)	L1 MP
3.1.2a	Drummond ✓RM 11:30 **OF** Half 12 ✓RM	2RM Lees vanaf kaart (2)	L1 MP
3.1.2b	Ongeveer 45 km ✓RM	1RM Lees vanaf kaart (1)	L1 MP
3.1.3	Tussen Botha's Hill en Pinetown ✓✓RM **OF** Botha's Hill na Winston Park ✓✓RM	2RM Lees vanaf kaart (2)	L1 MP
3.1.4	Gemiddelde spoed = $\frac{Afstand}{Tyd}$ $= \frac{89\text{ km}}{6{,}5\text{ h}}$ ✓SF = 13,6923 … km / h ≈ 13,69 km / h ✓CA	1SF Vervanging 1CA Antwoord **NP vir afronding** (2)	L1 MP
3.1.5	Net na Drummond is 'n opdraande Klein opdraande op Botha's hill ✓A Klein afdraande vanaf Botha's hill ✓A Steilste opdraande helling ✓A Steilste afdraande helling ✓A Lang afdraande hardloop ✓A	5A Een punt per beskrywing (5)	L2 MP
3.2.1	1 : 500 ✓✓ RM	2RP Lees vanaf plan (2)	L1 MP
3.2.2	Elke **1 eenheid** op die plan verteenwoordig **500 eenhede** in die werklikheid. ✓✓RP	1A 1 eenheid 1A 500 eenhede **Geen meeteenhede mag gegee word, bv. cm, mm, m.** (2)	L1 MP
3.2.3	Suid-Westelike muur = 9,8 cm ✓✓RP	2RP Lees vanaf plan **Bevestig en meet finale kopie** (2)	L1 MP
			[20]

Vr	Oplossing	Verduideliking	Vlak
2.2.2	P(Sandwich Spread) = $\frac{5}{144}$ × 100% ✓MA = 3,472 …% ≈ 3,47% ✓A	1M Vermenigvuldig met 100% 1MA Korrekte waardes in Breuk 1A Antwoord **NP vir afronding** (2)	L1 P
2.3	Die tyd wat dit Mev. Madiba sal neem om die skool te bereik: = 10:50 + 45 min ✓MA = 11:35 ✓A	1MA Optel 1A Antwoord (2)	L2 M
2.4.1	97ste Persentiel ✓✓RG	2RG Lees vanaf grafiek (2)	L1 M
2.4.2	150 cm ÷ 100 = 1,5 m ✓C $LMI = \frac{Massa\ in\ kg}{(Lengte\ in\ meter)^2}$ 27 kg / m^2 = $\frac{\text{Mass (in kg)}}{(1{,}5\ \text{m})^2}$ ✓SF 27 kg / m^2 × 2,25 m^2 = Massa (in kg) ✓M 60,75 kg = Massa ✓CA Mev. Madiba se opinie is korrek. ✓J	1C Herleiding 1SF Vervanging 1M Manipuleer formule 1CA Antwoord 1J Regverdiging (6)	L2 M
2.4.3	Suzy se nuwe LMI = 21,8 kg / m^2 ✓✓RG	2RG Lees vanaf grafiek **Aanvaar 21,7 en 21,9** (2)	L1 M
			[29]

VRAAG 2 [29]			
Vr	**Oplossing**	**Verduideliking**	**Vlak**
2.1.1a	Lengte = 24 duim x 2,54 ✓C = 60,96 cm ✓A Wydte = 12 duim x 2,54 = 30,48 cm ✓A Diepte = 10 duim x 2,54 = 25,4 cm ✓A	1C Herleiding 1A Antwoord lengte 1A Antwoord wydte 1A Antwoord diepte (4)	L2 M
2.1.1	Volume = Lengte x Wydte x Diepte ✓SF = 60,96 cm × 30,48 cm × 25,4 cm = 47 194,74432 cm^3 = 47 194,74 cm^3 ✓CA	1SF Vervanging 1CA Antwoord (2)	L2 M
2.1.2a	Driehoekige houers wat in lengte inpas ✓MA = (60,96 cm ÷ 10 cm) × 2 ✓MA = 12,192 ≈ 12 ✓A	1MA Deel met korrekte waardes 1MA Vermenigvuldig met 2 1AR Antwoord (3)	L2 M
2.1.2b	Driehoekige houers wat in wydte inpas = (30,48 cm ÷ 10 cm) × 2 ✓MA = 6,096 ≈ 6 ✓A ✓R	1MA Deel en vermenigvuldig met korrekte waardes 1A Antwoord 1R Afronding (2)	L2 M
2.1.3	Aantal kartonbokse $= \frac{Aantal\ kinders}{Aantal\ driehoekige\ houers}$ $= \frac{1\,500}{144}$ ✓MA = 10,4166 … bokse ≈ 10,5 bokse **OF** 10½ bokse ✓AR	1MA Deling 1AR Antwoord korrek afgerond **Slegs antw ord volpunte** (2)	L1 M
2.2.1	80 : 5 ✓MA 16 : 1 ✓S	1MA Korrekte verhouding 1S Vereenvoudiging (2)	L1 M

Vr	Oplossing	Verduideliking	Vlak
1.3.3	Waarde B = R140,00 + R179,39 + R170,86 + R584,79 + R380,98 ✓MA = R1 465,02 ✓A	1MA Optel 1A Antwoord **Slegs antwoord volpunte** (2)	L1 F
1.3.4	BTW 2017 = R1 655,55 × $\frac{14}{100}$ ✓✓MA = R231,78	1MA Korrekte waarde 1MA Vermenigvuldig met 14% (2)	L1 F
1.3.5	Addisionele bedrag by begroting = R1 887,33 – R1668,86 ✓MA = R218,47 ✓A	1M Bereken 12% 1A Antwoord **Slegs antwoord volpunte** (2)	L1 F
			[47]

Vr	Oplossing	Verduideliking	Vlak
1.2.2	Bedrag wat gefinansier moet word = Kosprys + Admin Fooi + Registrasie / Lisensie Fooi = R104 995 + R1 010 + R788 ✓MA = R106 793 ✓A Jaar 1: R106 793 + ($\frac{12}{100} \times R106\ 793$) ✓MA = R106 793 + R12 815,16 = R119 608,16 ✓CA Jaar 2: = R119 608,16 + ($\frac{12}{100} \times R119\ 608{,}16$) = R119 608,16 + R14 352,9792 = R133 961,14 ✓CA	1MA Optel korrekte bedrae 1A Antwoord 1MA Optel en vermenigvuldig 1CA Antwoord jaar 1 1CA Antwoord jaar 2 (5)	L3 F
1.2.3	Persentasie Deposito ✓MA = $\frac{R10\ 500}{R104\ 995} \times 100\%$ ✓M = 10,0004… % ✓A = 10% ✓R	1MA Korrekte waardes in breuk 1M Vermenigvuldig met 100% 1A Antwoord 1R Afgeronde Antwoord (4)	L1 F
1.3.1	Rentekoers: 'n **Persentasie** van 'n bedrag geld wat deur die bank gehef word wanneer geld aan 'n persoon geleen word. ✓✓O **OF** Enige soortgelyke definisie	2O Definisie s (2)	L1 F
1.3.2	Persentasie verhoging = $\frac{Nuwe\ bedrag - Ou\ bedrag}{Ou\ bedrag} \times 100\%$ = $\frac{R157{,}50 - R140{,}00}{R140{,}00} \times 100\%$ ✓SF $\frac{R17{,}50}{R140{,}00} \times 100\%$ ✓S = 12,5% ✓CA	2SF Vervanging 1S Vereenvoudiging 1CA Antwoord (3)	L2 F

Vr.	Oplossing	Verduideliking	Vlak
1.1.6	Jaarlikse mediese belastingkrediet = [(R257 x 2) + R172] × 12 ✓MA = R686 x 12 = R8 232 ✓A	1MA Optel R172 en Vermenigvuldig met 12 1A Antwoord **Slegs antwoord volpunte** (2)	L2 F
1.1.7a	Jaarlikse bedrag gespaar = Maandelikse bedrag gespaar x 12 = R3 000 x 12 = R36 000 ✓A	1A Antwoord **Slegs antwoord vol punte** (1)	L1 F
1.1.7b	Enkelvoudige rente = Bedrag gespaar × Rentekoers x Termyn = R36 000 × $\frac{3,4}{100}$ = R1 224 ✓A Bedrag gespaar = R36 000 + R1 224 = R37 224 ✓CA **OF** R36 000 x $\frac{103,4}{100}$ ✓M = R37 224 ✓CA **OF** R36 000 + (R36 000 x $\frac{3,4}{100}$) ✓M = R37 224 ✓CA	1A Antwoord 1CA Antwoord 1M Vermenigvuldig met 103,4 % 1CA Antwoord 1M Optel 3,4% 1CA Antwoord (2)	L1 F
1.2.1	Bedrag wat gefinansier moet word = Kosprys – (Deposito + Admin Fooi + Registrasie / Lisensie Fooi) ✓MA ✓MA = R104 995 – (R10 500 + R1 010 + R788) = R96 293,00 ✓A	1MA Trek deposito af 1MA Optel korrekte waardes 1A Antwoord (3)	L2 F

Vr	Oplossing	Verduideliking	Vlak
1.1.3a	Mediese Belastingkrediete = (Belasting Krediet van Hooflid + Belastingkrediet van afhanklike) x 12 = (R257 + R257) x 12 ✓MA = R6 168 ✓A **OF** (R257 x 2) x 12 ✓MA = R6 168 ✓A	1MA Optel en vermenigvuldig met 12 1A Antwoord (2)	L2 F
1.1.3b	Belasting betaalbaar = Jaarlikse belasting – Korting – Mediese krediet ✓RT = (18% × R174 479,70) – R12 726 – R6 168 = R31 406,35 – R12 726 – R6 168 ✓SF = R12 512,35 ✓CA	1RT Lees korrekte waarde 1 MA Vermenigvuldig met 2 en 12 1S Vermeenigvuldig met albei hakies 1CA Antwoord **CA van V1.1.2** (3)	L2 F
1.1.3c	Maandelikse PAYE = R12 512,35 ÷ 12 = R1 042,695833 ✓A ≈ R1 042,70 ✓R	1A Antwoord 1R Afronding **CA van V1.1.3a** (2)	L1 F
1.1.4a	Totale aftrekkings = R1 042,70 + R1 112,03 + R1 500 + R148,72 ✓MA = 3 803,45 ✓A	1MA Optel 1A Antwoord **Slegs antwoord volpunte** (2)	L2 F
1.1.4b	Netto maandelikse inkomste = R15 652 – R3 803,45 ✓MA = R11 848,55 ✓A	1MA Aftrek 1A Antwoord **Slegs antwoord volpunte** (2)	L1 F
1.1.5a	1% ✓✓A	2A Antwoord (2)	L1 F
1.1.5b	Totale bedrag aan WVF vir die maand oorbetaal = R148,72 x 2 **OF** R148,72 + R148,72 ✓MA = R297,44 ✓A	1MA Weet dat bedrag verdubbel word 1A Antwoord **Slegs antwoord volpunte** (2)	L1 F

GAUTENGSE DEPARTEMENT VAN ONDERWYS

VOORBEREIDENDE EKSAMEN – 2016

WISKUNDIGE GELETTERDHEID
(Eerste Vraestel)

MEMORANDUM

SLEUTEL TOT ONDERWERP SIMBOOL:

F = Finansies; M = Meting; MP = Kaarte, planne en ander voorstellings
DH = Datahantering; P = Waarskynlikheid

VRAAG 1 [47]

Vr	Oplossing	Verduideliking	Vlak
1.1.1	Bruto maandelikse inkomste = R14 872 + R780 ✓M = R15 652 ✓A	1M Metode 1A Antwoord **Slegs antwoord volpunte** (2)	L1 F
1.1.2	Jaarlikse inkomste = R15 652 x 12 = R187 824 ✓MA Belasbare inkomste = Jaarlikse inkomste – Jaarlikse pensioen ✓M ✓MA = R187 824 – (R1 112,03 x 12) = R187 824 – R13 344,30 = R174 479,70 ✓A **OF** R15 652 – R1 112,03 ✓MA = R14 539,97 ✓A Jaarliks = R14 537,97 x 12 ✓MA = R174 479,70 ✓A	1MA Bereken jaarlikse inkomste 1M Aftrek 1MA Vermenigvuldig met 12 1A Antwoord 1MA Aftrek 1A Antwoord 1MA Vermenigvuldig met 12 1A Antwoord (4)	L3 F

GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

VOORBEREIDENDE EKSAMEN

2016

MEMORANDUM

WISKUNDIGE GELETTERDHEID (EERSTE VRAESTEL) (10601)

Kodes	Verduideliking:
M	Metode
MA	Metode met Akkuraatheid
CA	Konstante Akkuraatheid
A	Akkuraatheid
C	Herleiding
D	Definieer
J	Regverdiging / Rede / Verduideliking
S	Vereenvoudiging
RT / RD / RG	Lees vanaf 'n tabel OF 'n grafiek OF 'n diagram OF 'n kaart OF 'n plan
F	Kies die korrekte formule
SF	Vervang in 'n formule
O	Opinie
P	Straf, bv. geen eenhede, verkeerde afronding ens.
R	Afronding
NP	Geen straf vir afronding OF eenhede uitgelaat

14 bladsye